

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 772.—Vol. XX.]

LONDON, SATURDAY, JUNE 8, 1850.

[PRICE 6D.]

SALE OF MINING PROPERTY, STEAM-ENGINE, &c.

MR. JOHN PARKIN will SELL, BY AUCTION, at LOSTWITHIEL CONSOLS MINE, near LOSTWITHIEL, on Tuesday, 11th of June, 1850, at which the MINE, ENGINE, and MATERIALS will be OFFERED IN ONE LOT; and if not sold, the STEAM-ENGINE and MATERIALS will be SEVERALLY OFFERED FOR SALE.

The STEAM-ENGINE is a 35-inch cylinder, 10-foot stroke, direct-acting, with iron cylinder case, and 11 tons boiler; all new two years since, very strong, and embracing every modern improvement.

The MATERIALS consist of 1 11-inch lift, 1 8-inch lift, complete, each 13 fathoms, 1 8-inch plunger-lift, 7 fathoms, capstan, capstan-rope, shoars, horse-whim, kibbles, rods, ladders, anvils, bellows, scales, whim-rope, crabwinch, blocks, tools, with various lots of iron, timber, ropes, &c.

To be viewed any day before the sale.—Sale to commence at Two P.M. precisely.

CARADON WHEEL HOOPER MINE, parish of ST. CLEER, 4 miles from Liskeard. MINE SETT, MINING MACHINERY, and MATERIALS.

MR. GEORGE TRICKETT will SELL, BY AUCTION, at CARADON WHEEL HOOPER MINE, on Thursday, the 13th day of June, 1850, the whole of the very excellent

MINING MATERIALS AND MACHINERY,

in and upon the said mine—consisting of a 30-inch cylinder STEAM-ENGINE, complete, boiler, 10 tons.

Balance-bob, capstan, shears, 75 fathoms of 10-inch rope, horse-whim, kibbles, water barrels, pulleys, whim chains, main shaft-rod, 1 9-inch plunger case, with stuffing-box, bushing, &c.; 1 9-inch plunger pole, 1 9-inch working barrel, 5 10-inch pumps, 1 8-inch plunger pole, 24 9-inch pumps, 3 8-inch working barrels, 3 doorpieces, 2 H-pieces, 4 windbora, 5 cisterns, buckets, brasses, prongs, &c.; air machine, water launders, zinc, air pipes, stays, &c.; casing and dividing timber, 100 feet of new timber, 40-inch smiths bellows, anvils, vice, screw stock, taps and plates, smiths' tools, miners' tools, 3 tons of new iron and steel, scales and weights, timber house, ladders, carpenters' shop, shed, &c.; carpenters' bench and tools, saw pit timber, powder, grease, oil, safety fuses, did iron, brass, dial, leather, counting-house furniture, consisting of writing desk, tables, chairs, capboards, &c.; and about ONE HUNDRED TONS of NEWPORT COALS, now laying at Tideford Quay.

At the same time will be OFFERED THE UNEXPIRED TERM of the SETT, which is situated in the midst of the CARADON RANGE, and adjoins the South Caradon Mines, and held for a term of 21 years, from Feb. 6, 1845, and from Feb. 3, 1846, to 1-15th days. All parties having any claims on the mine, and who have not already satisfied the same to the purchaser, Mr. Joseph Otton, St. Thomas's, Exeter, are requested to do so immediately. The Auctioneer respectfully invites the attention of mining agents and others to the above sale, the whole of the materials being in most excellent condition.

Refreshments at the counting-house, on the mine, at Twelve, and the sale to commence at One o'clock.—24, Buckwell-street, Plymouth, June 3, 1850.

MONMOUTHSHIRE.

VALUABLE FREEHOLD ESTATE—MINERAL PROPERTY, with the COLLIERY and FIRE-BRICK WORKS, and all the VALUABLE PLANT, &c.

MESSRS. FAREBROTHER, CLARK, & LYE will SELL, at Garraway's, on Thursday, June 27, at Twelve, by order of the Devises in Trust, of the late J. F. Hanson, Esq., a very valuable MINERAL PROPERTY, situate in the Parishes of HELLIS and LLANTARNAM, five miles from the town and port of Newport, with communication by the Monmouth Canal, on which there is a wharf attached to the works.

The estate comprises 376 acres, and contains COAL of EXCELLENT QUALITY, and ironstone running under the whole extent with limestone, building and paving stone, excellent manager's house, and 17 cottages; also suitable farm buildings. The minerals have been partially opened and proved, and the brick works are of sufficient extent to manufacture 200,000 fire-bricks per month, besides draining tiles. All the coal and iron measures known in this part of South Wales between the Pennant rock and the carboniferous limestone crop out on the estate.

The VALUABLE MACHINERY now used on the works will be included in the purchase. The surface rental, including cottages, is about £200 per annum. The estate is freehold, except 25 acres copyhold at a fine certain, and 87 acres leasehold for 99 years, at a rent of £15 per annum. A railway of two miles in extent, worked by self-acting inclines, has been made through the centre of the property, by which the produce of it is conveyed to the canal.

Full descriptive particulars may be had one month prior to the sale, at the works; the Cardiff Arms, Cardiff; King's Head, Newport; White Lion, Bristol; or of Mr. C. F. Phillips, solicitor, 44, Lincoln's Inn-fields; of Mr. J. T. Church, solicitor, 9, Bedford-row; at Garraway's; and Messrs. Farebrother, Clark, and Lye's offices, 6, Lancaster-place, Strand, where plans may be seen.

MR. ROBERT EVANS will SELL, BY AUCTION, at the Bridgewater Arms, NEWBRIDGE, on Saturday, June 29th, 1850, between the hours of Two and Three o'clock in the afternoon, subject to conditions of sale to be there produced, all that very valuable FREEHOLD FARM and LANDS, called IRW YCHA, situate in the Rhondda Valley, in the parish of Llantrisant, in the county of Glamorgan, containing by estimate 71 acres 1 rood 27 perches, or thereabouts.

The above farm abounds in coal and iron mine, and has opened thereon, but not at present worked, a quarry of excellent paving stones, which are beautifully veined, and when polished become a good substitute for marble; and has passing through it a railway, which connects it with the Taff Vale Railway and the Glamorganshire Canal, from which it is distant about two miles.

The tenant, Mr. Thomas Edwards, will show the premises; and further particulars may be had of Mr. Cuthbertson, solicitor, Neath.

MINE MATERIALS FOR SALE.—TO BE SOLD, BY

PRIVATE CONTRACT, for the remainder of the adventurers' term, of which 20 years are unexpired therein, the valuable TIN AND COPPER MINE, called WHEEL ANDERTON, situated near TAVISTOCK, DEVON, with the ENGINE and MATERIALS thereto belonging, comprising an excellent STEAM-ENGINE, of 30-inch cylinder, nearly new, 8-foot stroke in cylinder, and 7-foot in shaft, boiler, 7 tons, cast-iron, and case.

Also, a 25-inch cylinder ROTARY-ENGINE, new, boiler, 6 tons, drawing machine, and cast-iron shafts—axle attached, to carry 12-heads.

A good WATER-WHEEL, 35-foot diameter, and 31-foot breast, cast-iron axle, with stamps axle (oak), to carry 12-heads.

PITWORK from surface to the 90 fathom level—consisting of 9 and 8-inch pumps, 5 and 7-inch plungers, 2 H-pieces, with clackdoors, windbora, &c.; 1 8-inch, 3 7-inch, and 1 6-inch working-barrels, all of which are in the best possible condition—the greatest part new within the last three years.

Capstan, shears, balance-bob, main-rod and bucket-rod, 60 fathoms of 10-inch and 60 fathoms of 8-inch rope, 150 fathoms 4-inch, 91-16th inch, and 4-inch chain, horse-whim, pulleys and kibbles, smiths' bellows and anvils, smiths' and miners' tools, dressing tools and sheds, and all other necessary materials to carry out extended operations of the mine.

The attention of miners and adventurers generally are particularly invited, as near £7000 worth of tin and copper has been raised from the mine during the last three years, and the mine is now in work.

For inspecting the mine, application should be made to Capt. Carpenter, on the mine; and further particulars by letter, addressed "Wheat Anderton Committee, Royal Hotel, Plymouth."—Dated Royal Hotel, Plymouth, May 28, 1850.

TO CAPITALISTS.—More particularly those concerned in

MINING OPERATIONS.—WILL BE SOLD, if a suitable offer is made, in the county of CORK, a most desirable PROPERTY, containing SIX HUNDRED and FIFTY-EIGHT ACRES, situate measure, let to one solvent tenant, at the yearly rent of £240 per annum, for the term of 99 years, 20 of which have expired.

The property is situated within 4 miles of the post town of CLONAHILLY, and the lands are of the first quality; the rent is punctually paid by the lessee, who has an interest of fully £300 a year out of the lands, and the poor-rates have never exceeded 2s. 3d. in the £1.—To a Capitalist or Mining Company this would be a most valuable investment, as there is no doubt of there being both COPPER and LEAD MINES on it. The Royalty would be sold with the property—the great advantage of having the Royalty to sell is too apparent to require comment.

Should a liberal offer be made to the proprietor, Sir John Barry, Bart., Sandy-Mount, Dublin, he will sell the property under the "Encumbered Estates Act," which will expedite the sale, and ensure the title; but ample security must be given to the honourable intentions of the parties offering, as there is no necessity for the sale of the property, and it will not be sold without the full value of it is given.—Further particulars will be given on application to Sir John Barry, Bart., Sandy Mount, Dublin.

EAST OF SCOTLAND MALLEABLE IRON COMPANY.

The Directors have been authorised to RECEIVE OFFERS for the PURCHASE, or LEASE, of the MALLEABLE IRON WORKS at DUNFERMLINE—comprising a STEAM-ENGINE, of 80-horse power, working the machinery, consisting of FORGE and 3 PUDDLE BAR TRAINS, of 16 inches diameter, HAMMER and PATENT SHINGLING MACHINE; also a 16-inch MERCHANT BAR or RAIL MILL, a 12-inch MILL, for ordinary sized merchant bars, and an 8-inch GUIDE MILL, 15 PUDDLING FURNACES, and 6 MILL FURNACES—the whole capable of producing 120 tons of bar-iron weekly.

A REFINERY STEAM-ENGINE, of 45-horse power, with blowing apparatus, complete. A complete SET of WORKSHOPS, containing a 30-horse power STEAM-ENGINE, driving a powerful roll-turning lathe, and blowing apparatus for smiths' fires.

A PUMPING and CLAY MILL STEAM-ENGINE, of 16-horse power, used for the manufacture of fire-brick, and pumping water for supply of engines.

Also, in course of erection, a STEAM-ENGINE, of 80-horse power, intended to drive the mills apart from the forges, having strong cast-iron framing laid down, and machinery suitable on the premises, which could be brought into active operation in a short period.

Together with the necessary TOOLS, LOOSE MACHINERY and STOCKS, of different kinds.

Offers will also be received for the PURCHASE of the ESTATE of TRANSY, consisting of about 107 imperial acres, with elegant MANOR-HOUSE and PLEASURE GROUNDS, situated about half a mile to the east of the town of Dunfermline.

Applications may be made to Mr. James Inglis, Chairman of the Company; or to Johnstone, Russell, and Craig, writers, Dunfermline.—Dunfermline, March 16, 1850.

TO CONTRACTORS, BUILDERS, AND OTHERS.

TO BE SOLD, BY PRIVATE CONTRACT, the ENGINES, MACHINERY, &c., which have been used in the erection of the Britannia-bridge, consisting of ONE 40-horse HIGH-PRESSURE ENGINE, with 18-inch cylinder, and 3-foot 6-inch stroke, with boiler complete, drum and hoisting gear; ONE 25-horse HIGH-PRESSURE ENGINE, with 14-inch cylinder, and 2-foot stroke, with portable boiler complete, drum and hoisting gear; travelling cranes, landing cranes, setting machines, single and double purchase crabs, blocks, chain and tackle of every description, and of first-rate quality.—Application to be made to Messrs. B. J. Nowell and Co., at the works, Britannia-bridge, Bangor, North Wales.

ROBERT MUSSETT'S IMPROVED CAST-STEEL.—Engineers and Manufacturers in general are respectfully invited, to MAKE A TRIAL of this IMPROVED STEEL, which will be more heat in the working, and which is calculated to endure more hardship, than any Cast-Steel hitherto offered in the market. For TURNING and PLANING TOOLS this improved Cast-Steel will stand better, and keep its edge longer at double or even triple speed, than the best Sheffield Steel at ordinary speed.

Samples, or any larger quantities, drawn to sizes, may be had on application, by letter, to "The West Dean Steel Company," Colford, Gloucestershire.

STIRLING'S PATENTS FOR IMPROVEMENTS IN IRON.—1. TOUGHENED CAST-IRON, which is double the strength of ordinary cast-iron, and only from 10s. to 12s. per ton extra.

2. ANTI-LAMINATING RAILS AND TIRES FOR WHEELS at an extra price of about 7s. 6d. per ton. Also IMPROVEMENTS in the MAKING of WROUGHT-IRON—saving one process to the manufacturer.

Further particulars and terms of license, &c., may be obtained on application to Mr. Jee, civil engineer, No. 6, John-street, Adelphi, London; also from the London agents, Messrs. Gardner and MacAndrew, 27, Queen-street, Chancery; and the Scotch agents, Messrs. W. and J. H. Johnson, 166, Buchanan-street, Glasgow; and 30, St. Andrew's-square, Edinburgh.

LONDON AND NEWPORT IRON-WORKS, NEWPORT.

MONMOUTHSHIRE.—The PROPRIETOR of the ABOVE WORKS, finding the great and increasing demand for his PATENT FOUNDRY FURNACE to claim entire attention, he is induced to offer his very valuable and convenient FOUNDRY PREMISES FOR SALE, together with the STOCK and PLANT, complete, and ready for immediate occupation; the growing prosperity of Newport, and its increasing facilities by railway, render this an opportunity seldom occurring; the purchasers will also be entitled to the manufacturing privilege of South Wales for the "Patent Furnace," from 50 to 100 tons may be done on the premises with ease; there are three powerful cranes, and a "Patent Foundry Furnace" erected, which has been in successful operation for the last 6 months.

For further particulars address JOSEPH DEELEY, London and Newport Iron-Works, Newport, Mon.

UNSTON IRON WORKS, NEAR SHEFFIELD.

Messrs. RANGLEY, WRIGHT, and Co. invite the attention of IRON MANUFACTURERS, IRON FOUNDRERS, &c., to their DERBYSHIRE FIG-IRON (smelted entirely with coke), which they can with confidence recommend for all purposes where purity of metal, combined with tenacity or strength, is an object. Their No. 3 pig-iron is sufficiently fluid for all descriptions of foundry-work. PIPING made from this quality will admit of almost any amount of hydraulic pressure. As a mixture with tender iron, or for purposes requiring great strength, their No. 4 is particularly adapted. For FORGE PURPOSES, the loss from waste in cinder, &c., is much below the usual average, and the product a very superior iron.

Messrs. R. W. and Co. also beg to inform RAILWAY CONTRACTORS, ENGINEERS, GAS and WATER-WORKS COMPANIES, BUILDERS, MILLWRIGHTS, &c., that having purchased an extensive assortment of models and apparatus from Messrs. Wm. Graham and Co., of Milton Iron-works (who have declined business), and having engaged experienced workmen from that establishment, they are in a position to furnish ALL DESCRIPTIONS OF CASTINGS, suitable for the above branches, and at moderate prices.

SNOWDON COPPER MINE, in the parish of BEDDGE-

LERT, county of CAERNARVON.—ON THE COST-BOOK PRINCIPLE.

In 2048 shares, of £5 each.—Deposit £2 per share, without further calls—the remaining £3 being received out of the returns of the mine.

Upwards of £2000 have been expended on this mine and the works thereunto appertaining; in consequence, the present returns may be estimated at from 40 to 50 tons per month, according to the mining strength employed. There are now ready for sale upwards of 30 tons of ore.

In order to extend the operations of the mine, and carry out some valuable discoveries of mineral riches, the mine is now divided into 2048 shares, of which 1048 are offered to the public, subject to the before-mentioned deposit as working costs.

For prospectuses, with full particulars and reports, apply to Mr. Manier, 2, Scott's-yard, Basil-lane, Cannon-street, where specimens of the ore may be seen.

WARLEGGAN CONSOLS TIN AND COPPER MINES.

(Situated on the CARADON RANGE, in the parish of WARLEGGAN, in the COUNTY OF CORNWALL.)

CONDUCTED ON THE COST-BOOK SYSTEM.

The public are respectfully informed that the SHARE LIST in these MINES is CLOSED.—Reports of the working of the mines may be seen, and any further particulars obtained, at the offices, 28, Threadneedle-street, London.

June 4, 1850. W. L. TERNAN, Secretary.

WARWICKSHIRE MINING COMPANY.

Capital £20,000, in 4000 shares, of £5 each.

Provisionally Registered, in pursuance of 7 and 8 Victoria, cap. 110.

BANKERS.

Messrs. SMITH, PAYNE, & SMITHS, London.

Messrs. LITTLE & WOODCOCK, Coventry.

Messrs. ATTWOODS & SPOONER, Birmingham.

Messrs. WOODCOCK, TWIST, & SON, Coventry.

MR. GEORGE FOWLER, No. 9, Lincoln's Inn-fields, London.

PROSPECTUSES may be obtained on application to Messrs. Field, Son, and Wood, Warford-court, Throgmorton-street, London; Mr. George Fowler, No. 9, Lincoln's Inn-fields, London; Messrs. Brown and Clarke, Coventry; and Messrs. Lane and Perry, Waterloo-street, Birmingham.

EAST CORNWALL ASSOCIATION, FOR MINING

AND OTHER PURPOSES.

PROSPECTUS.

The objects of the association will be chiefly—The Purchase of Mine Shares—to take Mine Sels, and develop the Lodes—to Work Mines—to Purchase Mines about to be abandoned for want of Capital, and to Purchase by Private Contract, or otherwise, Mine Materials.—The Association will consist of three classes, of 64 members in each class:—

The First Class will deposit £1 0 0 every month.

The Second Class ditto 0 10 0 "

The Third Class ditto 0 5 0 "

The monthly deposits of each class to be deposited in a respectable bank at interest, or be employed by the managers in accordance with the objects of the Association.

Each member will be entitled to the same proportion of the interest or profits accruing to the Association, as he has deposited.

As soon as 30 applications have been made in each class, a meeting of the said applicants will be convened by G. W. Pickthorn, Esq., Secretary pro tem., for the purpose of electing a president, three vice-presidents, and 15 associates, and these will conduct the business of the association, and remain in office for six months, after which the whole body of the Association will exercise the right to nominate and appoint all the aforesaid officers, together with the secretary, annually, in the manner following—viz.: The President to be elected by the whole body, from the first class.

One Vice-President by the whole body, from each of the three classes.

Eight Associates by the whole body, from the first class.

Four Associates by the whole body, from the second class.

Two Associates by the whole body, from the third class.

The Secretary to be appointed by the whole body, from either class of the society.

All these officers and associates to be eligible for re-election.

No officer to be entitled to a remuneration except the secretary.

Application for a share in either class to be made in writing, containing the name and address of the party, to G. W. Pickthorn, Esq., the secretary pro tem.

The first applicants will, in every case, have the preference.

Callington, May 27, 1850.

FORM OF APPLICATION.

SIR,—You will please to enter my name as a member of the East Cornwall Association in the ——— Class.

To G. W. Pickthorn, Esq., Secretary pro tem.,

Moditon Cottage, Callington.

Signature.....

Residence.....

Profession.....

WANTED, in a MANUFACTURING BUSINESS and IRON TRADE, A PARTNER, who can command from £6000 to £8000, and who may be actively engaged or otherwise. The business is well established, and in full operation, yielding good profits, and capable of considerable improvements.—Communications, addressed to "A. B.," 25, Basilhall-street, London, will have prompt attention N.B.—None but principals will be treated with.

TO MINING COMPANIES AND SMELTMILL PROPRIETORS.—WANTED, an ENGAGEMENT, by an experienced ASSAYER and GENERAL SMELTING-WORKS AGENT, of long experience in the north of England.—Apply per letter (post-paid) to "S. W. A.," Post-office, Alston, Cumberland.

PARSEY'S PATENTED COMPRESSED AIR-ENGINES, applicable to Locomotive, Mining, and Stationary purposes, especially where steam is dangerous or objectionable. The duties of branch lines with small traffic performed at a great saving. The economy will give a cheerful feature to the present depressed state of railway property. The small engine may be seen, information given, and licenses granted, at 455, New Oxford-street.

CAMERON'S COALBROOK STEAM COAL & SWANSEA AND LOUGHOR RAILWAY COMPANY.—LANELLY BRANCH LINE.—The directors are ready to RECEIVE TENDERS for the SUPPLY of THREE HUNDRED TONS of RAILS for the permanent way of this branch line, now in course of construction, to be delivered at Lanellany not later than July next. Specifications may be had at the Company's office here. By order, A. C. HOWDEN, Secretary.

Offices, 2, Moorgate-street, London, June 4, 1850.

TO BE DISPOSED OF, in ONE THOUSAND SHARES, of £5 each, that well-known and valuable LEAD WORKS, called the NEW-BOROUGH MINE, situated near FETTING, Merionethshire, North Wales.—For particulars apply to Mr. F. Jones, Newborough Mine, Fetting, North Wales. N.B.—AN AGENT WANTED TO DISPOSE OF SHARES IN LONDON.

VALUABLE TIN AND COPPER MINE, CORNWALL.

The ruling part in the above, surrounded by other excellent mines, and wherein SEVEN LODES of TIN and COPPER are already discovered in extensive workings, to BE DISPOSED OF on such moderate terms as will ensure a handsome realisation. For particulars apply to B. Peach, Esq., solicitor, No. 15, Wine-office-court, Fleet-street, London.

NATIONAL BRAZILIAN MINING ASSOCIATION.

The DIRECTORS' REPORT may be OBTAINED at 26, Throgmorton-street, June 6, 1850.

THE FOLLOWING MATERIALS are WANTED IMMEDIATELY for the USE of LAMHEROE MINE, near TAVISTOCK.

Tenders to be addressed, as under, stating prices and terms, delivered on the mine:—

3 cwt. of WHITE LEAD. 1 bag 4-inch NAILS.

1 cwt. of RED LIME. 1 bag of ENGINE SHAG.

1 cwt. of FINE SALT. 1 dozen POWDER CANS.

1 cwt. of SHEET ditto. 1 dozen LOCKS.

1 bag 8-inch NAILS. 4 gallons LINED OIL.

4 lbs. of ZINC NAILS. JAMES CROFTS, Secretary.

Mining Offices, 4, King-street, Cheapside, London, June 8, 1850.

MINING PROPERTY.—MR. HERRON has SHARES in

the best DIVIDEND MINES FOR SALE, and which will give to the purchaser 17 to 25 per cent. for the outlay; amongst others are the following:—South Tolga, Trellawny, Devon Great Consols, South France, Trevelick and Barrier, Stray Park, Goginan, Lisburne, East Whim Rose, West Buller, Mary Ann, South Wheel Bassett, Botallack, United Mines, Treleigh, Tincroft, Bedford United; and in Foreign Mines—St. John del Rey, Linares, Santiago, Cobre, United Mexican, and National Brazilian Mines.

MINING OFFICES.—35, CLEMENTS-LANE, LOMBARD-STREET.

MINING INVESTMENT.—Messrs. BOXALL & CO.,

CROSBY HALL CHAMBERS, BISHOPSGATE-STREET, LONDON, are prepared to BUY and SELL SHARES in most of the Devon and Cornwall Mines, including Wheal Carpenter, Tremayne, Tincroft, South Plain Wood, West Polgoth, Wheal Vincent, Alfred Consols, Devon Great Consols, Exmoor Wheal Eliza, Conduvor, Stray Park, Wheal Franco, Modtonham, Wh. Fortescue, Henneck Silver-Lode, Camborne Consols, and Trehan.—Messrs. BOXALL & CO. are generally in a position to BUY and SELL at MARKET PRICES in most of the principal Mines in Devon and Cornwall, &c.

MR. EVAN HOPKINS, C.E., F.G.S., CONSULTING

MINING ENGINEER, OFFICE, No. 13, AUSTINFRIARS, LONDON.

MR. HOPKINS may be consulted daily by Noblemen, Gentlemen, and Capitalists, who have invested, or may wish to invest, their capital in MINES or MINERAL PROPERTIES, on all matters connected therewith (Home and Foreign).

* Every description of Mineral Property inspected and reported on, and distant capitalists may receive periodical advice, in the German, French, and Spanish Languages.

N.B.—Managers and Directors of Mines, as well as Mining Captains, will find Mr. Hopkins's offices convenient for reference on all matters connected with mining, as he has all the Maps on the Geology and Mines of the United Kingdom, the majority of which are from his own observations. The emigrants to California and other gold districts are also furnished with instructions on good mines, deposits, and machinery for the same.

MR. JAMES CROFTS, of No. 4, KING-STREET,

CHEAPSIDE, takes the liberty of soliciting the attention of CAPITALISTS to the MINING INTERESTS of GREAT BRITAIN, as offering, at this time, the SAFEST MEDIUM OF INVESTMENT of any adventures of an acknowledged speculative character, and TENDERS his SERVICES generally for the PURCHASE and SALE of MINING SHARES.

MR. CROFTS has at present FOR SALE SHARES in most of the MINES of repute, comprising the Tavistock District, and also in Botic Rock, West Providence, Eagar Lee, Cwm Erfin, Bodcal, Llwynmaes, Wheal Treseol, West Tolga, Grambler and Saint Aubyn, Wheal Vincent, Wheal Sarah, and Tokenbury; and is a BUYER in Lamheroe Wheal Maria.

MR. C. is NOT A DEALER, &c., in SHARES for his own account, but only for principals.

MESSRS. WATSON & ENSOR, MINING AGENTS,

4, TOKENHOUSE-YARD, LOTHBURY, LONDON.

MR. TRIPP, MINE AGENT, EXCLUSIVELY FOR PRINCIPALS,

is instructed to BUY and SELL in most of the best DIVIDEND-PAYING MINES; also in NEW ONES, having present and prospective advantages.

MINING OFFICES.

ST. MICHAEL'S CHAMBERS, ST. MICHAEL'S-ALLEY, CORNHILL, LONDON.

MR. T. A. READWIN, MINING OFFICES,

2, WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND

AND MINING SURVEYOR, No. 15, OLD BROAD-STREET, LONDON.

MR. GEORGE BATE, JUN., CIVIL ENGINEER AND

SURVEYOR, WOLVERHAMPTON.

Offices in Queen-street, corner of Piper's-row.

N.B.—UNDERGROUND MINING SURVEYS accurately executed.

JAMES LANE, MINING SHARE DEALER,

80, OLD BROAD-STREET, LONDON.

ALEXANDER & MOORE, MINING ENGINEERS,

24, ST. VINCENT-PLACE, GLASGOW.

BRITISH AND FOREIGN REGISTRY OFFICE.

PARTIES having MINERAL ESTATES, COLLIERIES, or MINES, FOR SALE, or SHARES TO DISPOSE OF, in DIVIDEND MINES, or OTHERS, by enclosing a list of the number and price of such shares, and particulars of such property, the same will be REGISTERED FOR SALE, and commission charged only on sales taking

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Geographical—3, Waterloo-place	7 P.M.
	British Architects—16, Grosvenor-street	8 P.M.
TUESDAY	Medical and Chirurgical—53, Berners-street	8 P.M.
	Zoological—11, Hanover-square	8 P.M.
	Synagogue—21, Mortimer-street, Cadogan-square	7 P.M.
WEDNESDAY	Microscopical—21, Regent-street	7 P.M.
	Ethnological—17, Saville-row	7 P.M.
	Literary Fund—73, Great Russell-street	7 P.M.
THURSDAY	Society of Arts—Adelphi	8 P.M.
	Royal Society—Somerset-house	8 P.M.
	Antiquaries—Somerset-house	8 P.M.
FRIDAY	Royal Society of Literature—4, St. Martin's-place	4 P.M.
	Philological—London Library, 19, St. James's square	8 P.M.
SATURDAY	Astronomical—Somerset-house	8 P.M.
	Asiatic—5, New Burlington-street	2 P.M.

ROYAL INSTITUTION.

Dr. Faraday's course of lectures on Domestic Chemistry was brought to a close on Saturday, with the subject of Ashes. One of the points he wished particularly to enforce was the great use and importance of the results of combustion, which was in general regarded as refuse, to be thrown away. The ashes which remain after all the combustible parts of the fuel are consumed, may generally be found in the fuel before it is burned, but other parts of ashes are the products of combustion, and not refuse; and these form an important class of bodies. Taking, however, the term "ashes" in its general acceptance, Dr. Faraday first showed the value of the mere refuse of our domestic fires, and gave a short history of the processes by which the clearings out of dust-holes are separated and appropriated to various uses. After the separation of the old pieces of metal, bones, skins, and other heterogeneous substances, the actual ash that remains is employed for manure, and for the manufacture of bricks, for which latter purpose no other material answers so well. The value of the sifted ashes varies greatly, according to the demand for brick-making—the dust contractor being able to take only 20s. per chaldron for the refuse, whilst at others he can only obtain one-twentieth part of that price. The ashes of plants consist in a great portion of silica, which is found most abundant in the stalks and leaves, and from which they derive their firmness and necessary strength. The amount of silica in wheat straw is equal to 67.90 parts in every hundred, while the quantity in the grain is only 1.18. The silica contained in straw being so abundant, it may be rendered visible and converted into glass by heat, as Dr. Faraday exhibited by burning a straw in the flame of a spirit lamp, and producing, as the result, a minute globe of glass. The proportion of silica varies considerably in various classes of plants. In rushes there is a less proportion than in straw; but in canes silica is so abundant, that accretions of the mineral in a solid state are not unfrequently found inside bamboo canes. That class of ashes which are the product of combustion, and not merely the refuse of the fuel, include both soda and potash. It is well known that Sir Humphry Davy discovered that the alkalis are but the ashes of inflammable minerals, which have such a strong affinity for oxygen, that they cannot, in ordinary circumstances, be prevented from combining with it and burning. The ashes of these minerals are abundant in several plants, and when they are consumed the alkaline ash remains. The vegetable alkali (potash) is derived from the combustion of plants containing it, and Dr. Faraday illustrated the development of that alkali by rubbing some wood ashes on moistened tannic paper, which became instantly marked with dark brown, indicating the presence of an alkali. By treating the ashes of sea-weed in a similar way, the same effect was produced, the alkali in this instance being soda. That very peculiar substance, iodine, was first discovered among the ashes of sea-weed, as explained by Dr. Faraday, who performed several experiments to illustrate its remarkable properties. He pointed out numerous other instances of the importance of ashes, one of which was the manufacture of glass—an article that is formed entirely by a combination of ashes of various kinds. Among other substances in nature which may be regarded as ashes, he mentioned volcanic lava and meteoric stones. In conclusion, Dr. Faraday remarked on the difficulty, which increased with every year, of finding fresh subjects whereon to discourse, and he said he feared that, in these lectures, he had been able to bring forward little novelty; but, though the sources of novelty on scientific subjects seemed to be nearly exhausted, he was happy to find, from the numerous attendance with which he had been honoured, that the sources of their favour were not yet dried up.

PROFESSOR ANSTED'S LECTURES ON PRACTICAL GEOLOGY.

On Thursday, May 30, Prof. Ansted delivered the seventh of his course of lectures at the Royal Institution, on Practical Geology. On the two previous occasions, he said he had alluded to those vast repositories of mineral fuel which had made our country the mistress of the world in respect to the economic arts and sciences, and far more happy and prosperous than the nations where they were called "the precious metals" abounded. His lecture that day would refer to the latter, and to other metals. The precious metals were all found in a native state, or in a state so little differing from their condition when in use, that they were at once discernible. Gold, for instance, was scarcely altered by exposure to the atmosphere, and its colour and condition when found, generally was not dissimilar to what they were when in use. Silver, it was true, blackened by exposure, but it was not at all difficult to find out the real nature of the substance. Other metals were mostly found in connection with earthy matter, and were then called ores; and their reduction was sometimes an expensive and costly process. The most important metals found in this state were iron, copper, lead, tin, and zinc. These were all used directly as metals, and also in other ways. A combination of other metals with copper made brass, for instance, and lead was greatly used in the form of common white paint. Another group was more important in their secondary use as pigments than as metals; these were cobalt, chrome, arsenic, mercury, and manganese. Of these mercury was the only one used as a metal, but it was much more used in other ways. Three other metals—nickel, antimony, and bismuth—were rendered most important by association. Nickel was much used in the manufacture of German silver; antimony in that of type metal; and bismuth in various ways, but chiefly with the object of making other metals more fusible.

The precious metals were gold, silver, and platinum, with some others of inferior importance—such as palladium. The largest proportion of the metals he had named were found in England. Gold was found in some parts of our island plentifully; but not in such abundance as to pay for the working. Silver was more common; and, indeed, he believed there was no lead ore which did not contain silver. The great supply of this metal, however, came from other countries. Lead was commonly found in England, in Cornwall, Devonshire, Derbyshire, and in a certain geological district in the northern counties. It was found also in the Isle of Man, Scotland, Wales, and Ireland. The value of the silver found annually in England was 30,000*l.*; and that of the lead, 4,000,000*l.* Copper was found in England in important quantities, although not in large masses, such as were discovered in other countries. Tin was obtained in great abundance; and it was a product of considerable importance. There were also large supplies obtained from different parts of Europe, the Island of Banca, and the Eastern Archipelago. Manganese was found everywhere; about 50,000*l.* worth was yearly used in England, chiefly in chemical works and dyes. Iron was, however, by far the most important of our minerals—the annual value of the produce being about 9,000,000*l.*

There were three ways in which these metals were found—viz.: in stream deposits of gravel, in beds, and in mineral veins. Gold, tin, and platinum, were chiefly found in stream workings—the metal being dislodged by water passing over the beds, and the particles, being rolled along with the gravel, settled wherever any local peculiarity reduced the rapidity of the stream, so as to allow a deposit. These deposits were afterwards washed, and the metal separated.

In mentioning the quantities of gold obtained, the talented lecturer stated that, although it was mostly found in minute particles, larger pieces were occasionally met with. As, for instance, a lump, weighing nearly 70 lb., and more than 3000*l.* in value, was said to have been found in the Russian mines. An aggregation of small particles soon made a valuable mass; and a single London house had melted 12 tons of gold from California. It was impossible to estimate the exact quantity; but, in his opinion, there was by no means so much as was supposed in California.

Iron, copper, and manganese, were chiefly obtained in beds. He had already mentioned instances in which iron alternated with seams of coal, and both were mined together.

The lecturer then proceeded to describe mineral veins as crevices in the

rocks, filled up, in some instances, with substances having a direct reference to the containing rocks, and in others with substances quite distinct from them. One of the most remarkable phenomena in connection with them was their having distinct and definite compass bearings. The minerals, too, it was obvious, must be newer than the rocks themselves which contained them; and it had been established beyond all question that, where veins crossed each other at right angles, the one must be of a different age to the other. The learned lecturer then described at some length, by reference to numerous diagrams, the different peculiarities of veins, as their varying thickness—now dying away to a thread, or disappearing altogether for a short distance, and then re-appearing in their original size, or value, and now expanding in thickness, until they became large nests, or pockets. Having mentioned the oxides, the sulphurets, and the carbonates, the lecturer said that the mixtures and associations of the metals was a subject of the greatest interest, a thorough knowledge of which often prevented valuable metals being thrown away as waste, when the direct object of the miner was to obtain other metals.

The actual origin of mineral veins, and the causes of their varied conditions, were by no means easy to trace. Many theories had been suggested, none of which were, however, perfectly satisfactory. Werner, a great mineralogist, explained all the phenomena which came under his notice by a reference to the action of water. Another theory pointed to an igneous fluidity, and the filling of the veins with their present contents in a state of vapour. A third theory was based upon the supposed action of electricity passing in currents through water. Perhaps in this diversity of opinion the safest course would be to assume that the veins themselves were simply mechanical results, either of subterranean disturbance, opening into great depths below the surface, or of contraction, sometimes proceeding to great depths, but generally terminating below—that the mechanical, and other fissures, had reference to the main line of dislocation observable in the direction of mountain chains, and other great world phenomena—that the fissures thus formed had been, like the rest of the earth's surface, subject to the action of magnetic currents, and had been receptacles, in which re-arrangement might conveniently act, and particles assume their natural crystalline form in their natural order—that the materials abundantly present in the earth's crust, or elaborated according to the action of chemical laws, had thus arranged themselves in those forms which circumstances had demanded—that in many cases this had gone on during long periods, involving change, and that thus the phenomena of pseudo-morphism, and the association of minerals, had taken place—that we must look to electro-chemistry, studied with reference to rock masses and complicated metallic results, for the means of advancing in this subject, but that with this view observations in mines must take the place of experiments in the laboratory. (Cheers.)

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

TUESDAY	East Wheel George Mining Company—offices, at Five, Bhowdell and Bachehold Mining Company—offices, at half-past One, South Tyne Colliery Company—offices, at One.
WEDNESDAY	Guadalupal Silver Mining Association—offices, at Two, Mexican and South American Company—offices, at One.
THURSDAY	Eastern Counties Railway—London Tavern, at Two, Grand Junction Water-Works Company—offices, at Twelve.
FRIDAY	Church of England Life and Fire Assurance Co.—offices, at Eleven.

(The meetings of Mining Companies are inserted among the Mining Intelligence.)

BANK OF BRITISH NORTH AMERICA.

The annual meeting of this corporation was held on Tuesday, the 4th inst., at the offices, St. Helen's-place, Bishopsgate-street.

WILLIAM CHAPMAN, Esq., in the chair.

The SECRETARY (George de B. Atwood, Esq.) having read the advertisement convening the meeting,

The CHAIRMAN said this was the 14th meeting of the proprietors, and, in pursuance of the provisions of their charter, and following the course previously adopted, he would request the secretary to read the report of the directors and the balance-sheet made up to 31st December, 1849. He would only add, that the directors were ready to give any information which might be required to any of the proprietors.

The SECRETARY then read the following report of the directors:—

In presenting their report on the business of this bank for the year ending 31st Dec., 1849, the court of directors have to remark, that the general state of trade in the colonies during the year, did not warrant in any important degree a relaxation of the restrictive policy upon which, as stated in the last two annual reports, they have felt it to be their duty to act. The opportunities for profitable employment of the capital of the bank have consequently been limited, and a large portion of it had to be held in reserve both in New York and London, where it could only be temporarily invested with perfect security at a comparatively low rate of interest. The directors are gratified in being able to state that symptoms of increased commercial activity begin to manifest themselves, especially at their branches in Canada West, arising as they believe from returning agricultural prosperity; and they entertain the expectation that a general revival of safe and remunerative trade from the peculiar condition of our colonies, will be followed by a more extensive and profitable employment of the capital of the bank in the North American provinces. The court of directors will anxiously watch every indication of improvement, and be ready to aid with the ample capital of the bank every branch of colonial commerce, which they can believe to be based upon sound principles of trade, and conducted with prudence. The experience of the last few years has fully satisfied the directors that they have acted wisely, and have protected the important trust confided to their care, by placing a strict limit upon their banking operations, so long as it appeared to them that the peculiar condition of the colonies, that few commercial transactions could be attended with profit. They believe that it is by pursuing such a course a bank can best exercise a wholesome influence upon the trading community, and be itself prepared to act with greater benefit in times of returning prosperity. The effect of such a policy must for a time be a reduction of apparent profits, and for this the court of directors were fully prepared. They are glad, however, that the result of the accounts now presented enables them to declare the same rate of dividend as last year, and to make a small addition to the rate of interest on the profits of the year, a sum sufficient, they believe, to cover any losses incurred, and debts of a doubtful character due to the bank.

Balance-Sheet—December 31, 1849.

LIABILITIES.	
Capital	£1,000,000 0 0
Circulation	211,181 1 9
Deposits	276,970 11 1
Bills payable and other liabilities	495,316 2 1
Reserve for Christmas dividend	26,000 0 0
Undivided net profit	58,359 10 9
Total	£1,966,287 5 8
ASSETS.	
Specie and cash at bankers	£193,017 11 2
Bills receivable and other securities	1,729,555 6 5
Bank premises	44,254 8 1
Total	£1,966,287 5 8
Profit and Loss Account from January 1 to December 31, 1849.	
DEBIT.	
To dividends declared as follows:—	
At Midsummer, 1849, payable July, 1849	£26,000 0 0
At Christmas, 1849, payable January, 1850	26,000 0 0
To balance, being undivided net profit, to 31st December, 1849	58,359 10 9
Total	£108,359 10 9
CREDIT.	
By balance of undivided net profit to 30th December, 1849	£67,302 18 7
By net profit for the year 1849, after deduction of all current charges, and providing for bad and doubtful debts	51,056 12 2
Total	£108,359 10 9

The CHAIRMAN said the report which had been just read to the proprietors called for few observations on his part, and he, therefore, need not occupy much of their time. The description given in the report of the inactive and depressed state of trade in the colonies was a matter which was no doubt familiar to all present. But the directors felt justified in stating that they saw evidences of returning prosperity throughout the colonies, and this he thought applied in a peculiar degree to Upper Canada, where, for some time, they had found a great improvement in the business of the bank, in its various branches. The directors entertained a well-founded hope that the measures which had been taken by the colonial Government and by the United States for throwing open the navigation of the St. Lawrence, and thus establishing reciprocity of trade between the United States and the colonies, would, if such measure should be carried out, do more to improve, and more to conduce to the rapid prosperity of the colonies than any Act of the colonial Legislature which had been passed for the last 50 years. If this expectation should be realised the directors would, as stated in the report, "anxiously watch every indication of improvement, and be ready to aid with the ample capital of the bank every branch of colonial commerce." The previous part of the report of the directors referred with gratification to the results which had followed upon an adherence, on their part, to that cautious restrictive policy which, on more than one occasion, the directors had called upon the proprietors to sanction. He thought he might state, that, owing to that policy, the directors were able to meet the proprietors to state that the large resources of this bank were so fortunately unfettered as to be immediately available to the extent of the business of this bank in every quarter. He hoped, in conclusion, that they had not been too sanguine in the expectation which they expressed—that expectation arose from an honest conviction. He would not take up any more time, but should be glad to convey any information which might be asked. Captain KELLY said he must confess, and he was sorry for it, that he could not express that gratification which he had stated on former occasions. He certainly, looking to the experience which was before his eyes, had contemplated that a considerable larger dividend would have been declared. He must observe that various colonial joint-stock banks had declared larger dividends. He would instance the case of the Ionian Bank, of the Australian Bank, and also of the Montreal Bank. There were circumstances which had

induced him to entertain a strong hope that, at least, the proprietors of this bank would have received a dividend equal to that of the Montreal, which, if he was correct, he believed was 6 per cent. He presumed the chairman would be able to give some sufficient reason for this. The chairman, he presumed, would be able to say whether this state of things arose from their having an immense capital which they had not the means to employ—whether it was from the enormous expenses attending this bank at home or abroad—whether there were more establishments than paid—whether they were carried on at a larger scale than they should be—or whether (as the proprietors had no means of knowing) the directors had made a large amount of bad debts? All this he thought might be explained. And here he would state, that one of the proprietors who was not present, but who had been a partner in the oldest bank in Norfolk for 30 or 40 years, expressed great dissatisfaction to him (Captain Kelly) on one point especially. That gentleman said that his experience had taught him to know that 5 per cent. in the way of trading was no great return. There was a sum of 450,000*l.* which had been lent by other parties to the colonial Government at 6 per cent.; and if their directors had lent that money they would have got 6 per cent. for it—and there was no risk there. He did not think that as commercial men, or as traders, as they were, they should rest satisfied with a return of 5 per cent. for their capital. Under these circumstances, he felt compelled, though reluctantly, to declare his dissatisfaction, and he hoped the chairman would give more information to the proprietors. He was ready to receive their expectation of receiving a larger dividend next year, but he could not refrain from saying that these expectations had been held out for several successive years.

The CHAIRMAN said that as merchants most they would not receive 5 per cent. if they could get 6 per cent. for their money; but in an institution like this, safety of investment should be the leading ingredient or principle. Nor could their case be brought in comparison with other institutions in Canada, because the clauses in their charter placed them at a disadvantage; but, on the other hand, it gave them that security which he was sure none of the proprietors would part with. The Montreal Bank had not a paid-up capital as they had. The proprietors of this bank, he imagined, would be more satisfied with a small profit, and the risk of losing the amount of capital employed, than with an additional profit. Now, the diminution in their profits had not arisen from bad debts, at the same time, with regard to the debts, it had been the duty of the directors, and he believed they had conscientiously discharged it, never to declare a profit which was not borne out by the figures before them. It had been their duty to revise their liabilities and debts, and to set aside whatever they felt they might consider would prove a loss to the bank. They had given only the real profits.

Captain KELLY said the chairman had answered his question with reference to the capital unemployed; but he had not answered his inquiry as to the amount of debts and expenses. The CHAIRMAN said, with regard to the establishments and salaries of officers of the bank in Canada, he could state from his own knowledge, having been himself connected with the Montreal Bank, that the salaries were as small as they could be. With reference to the establishments, however, it was a question which had occupied the attention of the directors, whether some branches, or at least one, might be reduced. The directors only wished to leave the bank in the best state, and not to have their business covered by the mere appearance of business, nor to have the business spread over too wide a surface. With regard to bad debts, without going into particulars of pounds, shillings, and pence, which would be contrary to the usual course, he would only assure the proprietors again that these matters were subject to revision at the end of every year, and that a sum was put by every year as a reserve fund to meet bad debts. The amount of the indemnity fund was 44,000*l.*

Captain KELLY thought it had been stated last year that it was 43,000*l.* for bills payable and other liabilities, set apart and intended to meet bad debts. What was this fund?

The CHAIRMAN said it was the amount reserved.

A PROPRIETOR: It was further stated then that 13,000*l.* was taken from the profits of 1848. He wished to know how much was taken from the profits of 1849?

The CHAIRMAN: About 4000*l.*

A PROPRIETOR: Then he understood the sum so deducted was 9000*l.* less than last year.

The CHAIRMAN: The profits were smaller, as accounted for by the circumstances to which the report alluded.

A PROPRIETOR: There was another item to which he begged to refer—viz.: that of "bank premises." This had been increased from 36,000*l.* to 44,250*l.* How was this?

The CHAIRMAN said, they had been obliged to erect bank premises of their own in Newfoundland; and this formed the principal part of the expense of last year. The directors wished the proprietors to be assured that the subject had occupied the minds of the directors, and that they had endeavoured to keep the amount of capital unemployed as small as possible.

The CHAIRMAN said, he could hardly say on the spur of the moment. With the exception of the balance at their bankers he could hardly say that any of it was unemployed. A part of it was available within a few days' notice. A large sum was invested at New York upon undenial securities, available at a moment's notice, and for which they received a higher rate of interest.

A PROPRIETOR: How much of the capital was in England?

The CHAIRMAN: About 92,000*l.*, that was to say, that 92,000*l.* was the surplus, after paying acceptances. The actual amount of cash now in London was about 75,000*l.* bearing interest.

A PROPRIETOR: What was the average rate of interest received?

The CHAIRMAN said, it was impossible to answer that question at once; but he would value it perhaps at 1½ per cent.

A PROPRIETOR: How much money had they in deposit receipts in the colonies, for which they paid 3 per cent.? The CHAIRMAN said, he supposed about 100,000*l.* currency in all their branches.

A PROPRIETOR: Those who kept moving balances were important customers. He wished to know why the dividend of the bank was not larger? He did not call into question the expenses of the colonial branches, nor the expenses of the city establishment, but the directors acknowledged that they had in the colonies 100,000*l.* for which they paid 3 per cent.; at the same time there were 60,000*l.* for which they were getting 1½ per cent.

His friend BARNESWELL begged to offer an explanation. It was the custom of all banks in Canada to take deposit at 3 per cent. The directors of the Montreal Bank, as was the case, but the proprietor must recollect, in the employment of any funds in the colony, the rate obtained was 6 per cent.; and if owing to the dull state of trade, they were obliged, for the convenience of their branches, to keep a large sum in New York, they got a larger amount of interest than they paid to those who took deposit receipts. As to the surplus of 90,000*l.*, it was clear that transactions would arise with the branches, according to the state of trade and the exchange, in which drafts would pour in upon them, and they could not leave themselves without this surplus. Events might occur, as was the case a few years ago, when it was necessary that every establishment should have a large reserve fund, and he did not think that 90,000*l.* was excessive.

A PROPRIETOR asked what were the gross profits of last year?

The CHAIRMAN said, 77,512*l.* 12s. 8d.

Mr. S. SAMUEL inquired, what was the gross amount of the expense of the establishment abroad? He complained that this information was withheld from the proprietors though it had been repeatedly asked for. He considered this bank to be as bad a concern as he had ever been in.

A DIRECTOR: Have you had anything to do with railway companies? (A laugh.)

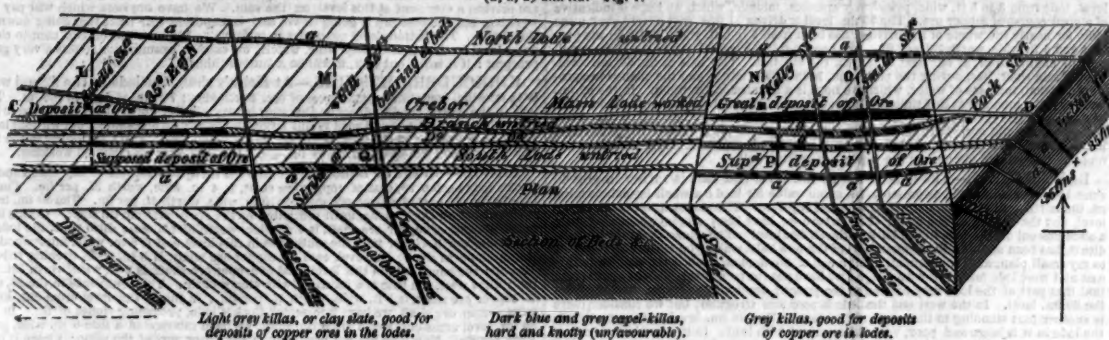
Mr. SAMUEL: No; he had never been in them.

Mr. CUMMINGS thought Mr. Samuel was a fortunate man. If he went through the other colonial banks he would find that the position of this bank was so bad as he thought, as compared with the Montreal Bank first paid 10 per cent. dividend; then 8 per cent. and now they had come down to 6 per cent. In various parts of the colonies of British North America there were cases where the banks had paid no dividends at all; others a very small one. He thought the proprietors of this bank had no cause to be dissatisfied. They had been compelled to pay up 1,000,000*l.* capital, and that large capital was the price of a peculiar privilege conceded to the Bank of British North America, by which no proprietor was liable for a single farthing beyond his contribution, but they shared with the capital was considerably larger than was required by the present state of business in Canada. At the present moment the directors had withdrawn from competition in business involving more than ordinary risk. They restricted their business to what they believed to be the safest business, and this had caused a large sum to remain in New York; but it waited for further employment. His friend had told them that they had indulged in the language of hope in the last year's report. If he looked back to that report he would see that, instead of speaking of improvement, they simply said, "that in the midst of circumstances proceeding no ordinary amount of difficulty, the commercial community of the North American colonies generally have sustained their credit in a manner highly honourable to their character as British merchants." The report in another paragraph stated—"In reporting the affairs of the bank for the last three years, they have been led necessarily to notice the depression of commerce in the colonies; they place, however, strong reliance upon the enterprise and industry of their fellow-subjects in British North America, and have much confidence in the growing wealth of the provinces; they trust, therefore, that this depression will prove to be but temporary." He had listened to the argument of the gentleman from whom he had hoped to have learned a lesson as to the small profits in trade, and how they should improve them; but the comparison between what he said as to the 3 per cent. in the colonies, and the interest in London of 1½, did not indicate anything in respect to their profits. If that sum were lying idle in the Bank of England they could not help it; but the branch where the largest deposit of money was held bearing interest was the branch where there was the largest amount of profits. The opportunities afforded by their business in Canada and New York gave them a profit on the very money which was placed in their hands at 3 per cent. The chairman had already stated that the attention of the directors had been turned to the reduction of their establishments to the smallest possible amount, and he might add that they were contracting their expenditure in Canada as much as possible. But they could not suddenly withdraw a branch. A banker in London could not reduce his staff suddenly; and with the privilege given to them of no responsibility beyond their paid-up capital, the directors were not prepared to peril the power vested in their hands. Let it be remembered that their capital was safe, that it gave them 3 per cent. interest with an ample fund to cover losses, and how they should improve them; but the comparison between what he said as to the 3 per cent. in the colonies, and the interest in London of 1½, did not indicate anything in respect to their profits. 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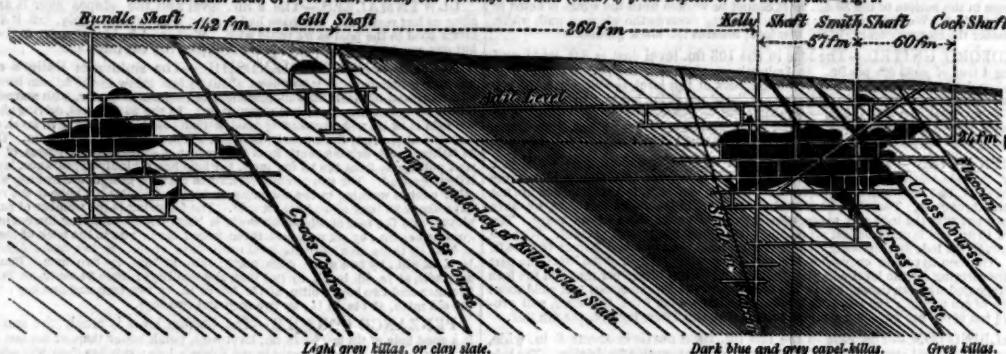
MINING NOTABILIA

[EXTRACTS FROM OUR CORRESPONDENCE.]

Plan on line A, B, of Section, showing the Main Lode, and the Deposits of Copper Ore found and wrought therein, and also the Parallel Lodes and supposed Deposits of Ore (a, a, a) untried.—Fig. 1.



Section on Main Lode, C, D, on Plan, showing Old Workings and Sites (black) of great Deposits of Ore worked out.—Fig. 2.



TURN-OUT OF MINERS IN WALES.

FROM A CORRESPONDENT.

The stand-out with the miners near Holywell still continues, and the agitation throughout all the mines is becoming a source of nuisance to shopkeepers, tradespeople, and a many of the peaceable inhabitants of the neighbourhood, from the assemblage of considerable bodies of miners, using threatening language, and demanding from the agent six hours' labour, who has no authority to grant less than eight hours, agreeably with the rules of the mine, made by his employer, and which he dare not alter. On Thursday last, a deputation of two men arrived at the Halkin Mines—a six hours' concern. Their arrival spread like wildfire; and at six on Friday morning, the Halkin men were in fine marching order, armed with big sticks and clubs, when orders were promptly given to march northward on the Pen-y-henblas Mine, also a six hours' concern, whose men, it appears, were ignorant of this great and important movement. However, they were soon got to the surface, and again in marching order. When so reinforced, orders were again given to march on to Milwr—an eight hours' mine. Being there further strengthened, orders were given to meet the main body of the forces from Talargoch (a six hours' mine), at California, about two miles north from Holywell—this spot being selected as the ground for the display of strength and courage, to succeed or die in the attempt to accomplish their grand object of driving away a poor solitary stranger, the agent! After some parley, they broke into his lodging-house, threw him down the stairs, causing him serious injury; and with pulls, kicks, thumps, and pushes, with clubs, got him on his legs again, and drove him in running trot before them, and triumphantly conducted him on board a steamboat plying between Liverpool and Mostyn (the latter place five miles distant from the great scene of action), with a threat that, if he ever returned, they would take his life. In this state the matter rests for the present. What is to be the next great movement has not yet transpired—at least, I have not heard. The ringleaders in this disgraceful affair are well known to many, and will be identified when the proper time arrives.

MINING OPERATIONS NEAR THE WADEBRIDGE RAILWAY.

About two years ago a sett was obtained of the Boscarné and other estates amounting to several hundred acres of land, the property of the Rev. Philipps Flamank, the rector of the parish of Lanivet, in Cornwall. Applications have been frequently made to the late proprietor during the last 30 years for a sett of these estates, but without success, the late Mr. Flamank having had a great objection to mining operations in his lands, although several very promising lodes had, from time to time, been discovered, varying from 2 to 6 ft. wide, and strongly impregnated with mineral near the surface. An adit level was commenced north of the river, running through these estates near Nanballan-bridge railway station, and extended some 80 or 90 fms. in length, through a highly-mineralized clay-slate, commonly termed killas, by means of which a large lead lode was discovered, varying from 6 to 9 ft. in width, containing gossan, flookan, spar, and lead ore, in lumps from 1 lb. to 14 lbs. weight each and containing, by assay, 75 per cent. for lead, and 38 ozs. of silver to the ton of ore. Operations were commenced with spirit in the spring of this year by a company of London gentlemen, and a powerful steam-engine has been erected, capable of pumping 700 gallons of water per minute; and it is to be hoped that the company will reap a rich reward, which they well deserve from the manner in which every part of their operations seems to be conducted.

The inhabitants of the district are, in great spirits, as the men employed (about 60 in number) say they never worked in any new mine in the course of their lives holding out such prospects of success. This lode has been proved by means of sinking of shafts from the surface, to vary from 4 to 9 ft. in width for upwards of $\frac{1}{4}$ mile in length, and to be intersected in the valley by three large north and south lodes, called cross-courses, and by several other lodes, said to be exceedingly promising for copper, at no great depth from the surface, running in a contrary direction from the cross lodes, and the great lead lode. The rev. proprietor of the estates deserves great praise for the prompt and business-like manner in which, I was informed, he acted towards the company in furthering their operations to the best in his power. The adjoining towns will, no doubt, soon feel the good effect of a greater extent of money in circulation, in consequence of so many persons likely to find employment in this mine, the success of which there is every prospect of. The prosperity of Cornwall much depends upon the success of its mines, like that of Lancashire on the success of its manufactories; but the trade of many Cornish towns has dwindled away to almost nothing, owing to the landed proprietors in many districts refusing to grant settlements of their land—they acting more like a former race of people, called Medes and Persians, than men of the present enlightened generation, and greatly by so doing against their own interest.

IMPROVEMENTS IN BLASTING.—Mr. Speakman, of Philadelphia, has introduced an ingenious alteration in the common method of blasting rocks in mines and quarries, and which is stated to possess many advantages over the old method. Mr. Speakman calls his invention the "conical wedge tube." It is composed of strong brown paper, rendered water-proof and formed into a tapering tube, of a sugar loaf or conical form, and which, being filled with powder, is ready for use; one of these tubes is placed in the hole, and surrounded with earth, rammed in, and the fire communicated in the ordinary way. The powder being preserved in its wedge-like form, the whole force takes a lateral direction, and the execution on the rock is said to be double that by the common method—that is, one-half pound weight of powder will accomplish equal results with a pound by the old operation of tamping.

A GOLD MINE AT WIGAN!—The neighbourhood of Wigan has long been famous for its mineral wealth; and, if we are to believe a report which reached us yesterday, it is about to prove a second California, and to become as celebrated for its gold as it is already for its (black) diamonds. Our reporter there informs us that considerable excitement had been created by the announcement that some men, who were digging out the foundations of some new shops in Scholes, had discovered a bed of spangled earth, which contained a great portion of gold. He has sent us a specimen of this precious earth, which seems to us (not viewing it probably with the eyes of faith necessary to discover its value) very like decayed granite or sandstone, containing many small scales of mica.—*Manchester Guardian.*

A DESPERATE CASE OF SCROFULA CURED BY HOLLOWAY'S OINTMENT AND PILL. Mr. Heywood, Sydney, who has acted for the sale of Holloway's medicines in New South Wales, states that Thomas Evans, in the employ of Mr. Charles Thompson of Baramah, was sorely afflicted for years with scrofula in the neck, and his body was covered with a peculiar kind of pimple, out of which exuded a watery mucus. He had been at considerable expense in trying various medicines, but without any good effect; he then used Holloway's Ointment and Pills, which in a very short period so effectually healed him, that he is now a "perfect man." *See* *Illustrations*, page 10.

We are glad to find that mining operations are extending their sphere, encouraged by the profitable advancement made of late, and the standard of copper which, although not equal to the expectations of many, will doubtless reach its position of greater advance. Among other projects put forward, the Snowdon district would seem to excite particular attention, an advertisement appearing in another column, having for its object the completion of a new working on the working of the Snowdon Copper Mine, and which is represented to be on a fair course of working, capable of yielding, at the present time, 20 to 80 tons per month, which it is contemplated may be extended to 80 or 100 tons per month. Upwards of 8000*l*. have been expended on the mine, and it is considered, by the extension of the levels and carrying out some new workings south of the present, that large returns may be calculated upon.

ROCHE ROCK TIN MIN.—I have just returned from the mine, where I had the pleasure of meeting Capt. Barrett, who has been appointed to the management, and from whose great practical experience and high character I anticipate the most favourable results to my co-adventurers. I met there also Mr. West, the engineer, of St. Blazey, who has contracted for the removal and erection of a 50-in. cylinder engine, just bought by this company from an adjacent mine, for much less than one-half its original cost. This they have been enabled to do by the maker of the smaller engine having liberally consented to cancel the contract, so that we shall now be able fully to develop the mine, and for that purpose a new shaft is being sunk 20 fms. west on the lode (to be called Birch's), which, with the power we now possess, may be sunk full 100 fms. About 40 men are now employed, and the new tribute pitch taken at 10s. in 12. The produce of the last month is about 65*l*, but this will be considerably increased now the men are fairly at work, as I find, up to the present time, only six men and boys have been employed in the old shaft, where they have been greatly inconvenienced by the water. My visit has been most satisfactory, and proving to me that the reports I have read in your Journal have not been over estimated. [Enclose my card.]—A SHAREHOLDER: *Liskeard, June 6.*

TAMATEK FOLIO.—Mining operations have been commenced here under the most favourable auspices, and the promise held out, so far as the lodes have been proved, and the nature of the country warrants, would lead to the expectation, which it is hoped may be realised, that this locality will doubtless give rise to a large output of silver-lead. Two sets are we understand, now in course of working; the Wheel Guinnee, looks well, there being a fine lead lode, carrying silver, and a steam-engine is now in course of erection; the other, Wheel Longmaid, which is on the same lode, also holds out great promise, the lode having been out near surface, 9 to 10 ft. wide, impregnated throughout with rich silver-lead ores. They are now sinking a shaft to take the lode at about 15 fms. deep, in which several strings or branches occur. These are the only mines at present at work, but no doubt can be entertained, if they prove successful, as they at present promise to do, that this will become a most important mining district.

EXHIBITION OF THE INDUSTRY OF ALL NATIONS.—We understand that another week will not expire without some decided step being taken to invite tenders from contractors for the erection of the great building in Hyde-park for the exposition of 1861. It is to be about 2300 feet long, 400 feet wide, and the roof will probably cover 900,000 square feet, or upwards of 20 acres. The principal entrance will be opposite Prince's Gate; all the passages will be 48 ft. wide, left clear and uninterrupted, except by seats, and in the centre, where they meet, will be constructed a grand hall for sculpture, 200 feet in diameter. The lowest portion of the roof over the walks will be 24 feet, and the highest 50 feet; the floor will be of boards, laid on joists and sleepers. The central hall will be a polygon of 16 sides, four of which will open into gardens reserved all round it. The walls will be of brick, 60 feet high, and probably surmounted by a splendid dome. Contractors will be required to tender on two systems—one involving a resumption of property in the materials after the exhibition; and the other on which the whole becomes the absolute property of the commissioners. The whole will have to be completed by January 1, 1861.

STAIIE'S ELECTRIC LIGHT.—Mr. Staitc exhibited his electric light from the lighthouse on the South Pier, Sunderland, on Monday evening last. He was invited by the commissioners of the River Wear, in order, if found suitable, it might be adopted as the permanent means of illuminating the new dock. Towards evening, thousands thronged the quays and piers; and many took trips to sea to witness the effect of the light several miles from the land. The apparatus was erected upon a temporary platform, raised a few feet above the lighthouse on the South Pier—the galvanic battery being placed in a shed below. We learn, by the *Sunderland Herald*, that at 10 o'clock exactly, the anxious spectators were gratified by the first glimpse of the light, which was shown with a parabolic reflector. It was first directed towards Hartlepool, Seaham, and Ryhope, and then brought gradually northward, by the reflector being moved slowly round—all the while, however, the beams falling inland. The light was then sent successively upon the Docks, St. John's Chapel, the quays, piers, and then towards Koker and Whitburn. On all these points a bright stream of light was thrown with a marked effect, and a sudden glare was seen, such that persons were obliged to avert their eyes from the lighthouse. At the furthest ends of the piers, the illumination was so great, that one could distinguish the features of another individual at a considerable distance.—In fact, the pier, from end to end, had the appearance of a fine promenade, splendidly lighted up. When directed towards a vessel, which happened to be entering the harbour, it rendered every object on deck clearly visible; and any one possessing an ordinary power of vision could easily make out the smallest print. At Ryhope, three miles from the lighthouse, a lady and her husband were seated on a promenade, and saw, at Whitburn, a mile distant, in an opposite direction, the *Herald* was read on the sands by several individuals, when the reflector was in such a position as to cast a beam of light in that direction. The iron-bridge which crosses the River Wear, three-quarters of a mile from the pier, was crowded with spectators; and even there it was easy to distinguish small print. The Building Hill was also crowded; and, indeed, almost everywhere that it was known that the light was to be exhibited, parties were eager to obtain a glimpse of it. At 12 o'clock, the commissioner proceeded out to sea, a distance of three miles, in the *Sea Horse*, a small boat, in which distance the pier light was invisible; while the electric light shone clear, bright, and effulgent as ever; and a captain might have brought his chart upon deck, and consulted it with ease. The following letter, received by Mr. Meik, from Mr. Read, harbour master at Seaham, seven miles off, shows how it was distinguished there:—"I was favoured with your note yesterday, with the information that the electric light would be shown at Sunderland last evening, and I beg to express my best acknowledgments for it. I observed the light to burst out with a sudden glare, and it was so bright that it was impossible to look at it directly. In 15.25, when it suddenly increased both its apparent size and intensity to a light of surpassing splendour, reducing the other lights near it as seen from Seaham North Pier to the veriest sparks." We understand the commissioners expressed their decided unanimity on the complete success of the experiment.

ELECTRO-THERMOTELGRAPH.—In the *Mining Journal* of 16th March we noticed that a patent had been granted to Mr. Thomas, of Norwich, New York, for a new electric telegraph, in which heat was the active agent. We now find that the peculiarity lies in the mechanical arrangement, by which the printing is effected at the terminus of the wires. The galvanic battery is employed as usual for generating the electric current; but after reaching the recording instrument, it is conducted on to an attenuated platinum point, in contact with the paper, which becomes instantaneously heated, or suddenly cold, according as the circuit of electricity is made or broken, the application of the heat producing the mark. Common dry paper may be used for recording, but that which has been chemically prepared will, probably, be found the best. In this manner precisely the same result is produced as by Morse or Bain's telegraph, but without a magnet or decomposing any salts, two peculiarities which form the basis of those systems. In all its details, in all its provisions for signals, and in everything connected with its practical operation, it has been carefully considered, and is said to be as perfect as it is possible to desire. It would appear that there must be somewhat more merit in this idea than in the generality of American patents, for it is said to have met with a most severe and scrupulous investigation at the patent office; in fact, to a more rigid and critical examination than any patents are ever subject to. Nothing, however, could be found to throw the slightest doubt on its originality, or to conflict with it in the slightest degree.

JORDAN'S PATENT UNITED IRON AND WOOD SHIPS.—A vessel on this new mode of construction is now being built in the Herculeanum Docks, Liverpool, which, when completed, will, doubtless, decide the question as to the superiority of the plan, compared with a vessel built of all iron or all wood. This experimental vessel, although small, is exceedingly elegant in her mould, and evidently of great strength. She is 50 ft. long, with ample beams and bearings; measures 40 tons, but can carry 55 tons, dead weight. The ribs are of strong angle iron, similar to an iron ship; the keel, stem, and stern post, are of wood; and, when closed in the vessel, will have every appearance of a wooden one. The manner in which the iron work of the keelson, apron, and inner stem post are secured to the wooden keel, stem, and stern post, combines greater strength than is obtained in ordinary vessels. The wood ends are secured fore and aft by a double row of bolts; and the planks all along are secured to the iron ribs by bolts and nuts—the bolts being coated with gutta-percha. The deck beams and fastenings are all of iron; the deck of pine. The entire spaces between the ribs will be filled in with asphaltum. The keel was laid so recently as 1st May last; and she will be ready for launching next week. Her destination is to coast the island of Demerara, with passengers and goods.

THE IRON-WORKS OF SCOTLAND.—There are four great iron-fields in Scotland, containing 28 works and 135 furnaces, which were in blast in July 1849. The most northerly field lies on both sides of the Forth, and contains 5 works and 15 furnaces—Devon 1, Forth 5, Lochgelly 2, Kinneil 4, Carron 3. The largest is that of Clydesdale, containing 15 works and 85 furnaces—Garscube 1, Govan 5, Clyde 7, Gartcharrie 16, Summerlee 6, Dundyan 9, Calder 7, Langroo 6, Monkland 3, Omos 4, Coltness 6, Shotts 4, Castlilloch 2, Chapel 3, Lanark 6. The most westerly field is that in the north of Ayrshire, containing 4 works and 22 furnaces—Kilbirnie 9, Blair 6, Kilmwinning 3, Portland 4. The most southerly field lies on the borders of the shires of Ayr, Lanark, and Dumfries, containing 4 works and 13 furnaces—Lugar 4, Dalmellington 3, Muirkirk 3, Nithdale 3.

The following report, from Mr. ARTHUR DEAN, C.E., has just been issued by the committee of management to the adventurers in Wheel Crebor:—

the Committee of Management to the adventurers in *Wheat Crebor*:—
Taviastock, May 15.—As I cannot attend the general meeting of the shareholders to-morrow (16th inst.), to be held in London, I have made a few memoranda on the Crebor Adventure, which I have just inspected, and forward you them herewith, as I doubt not the other adventurers will be glad to learn something more concerning the mineral property they have now acquired. The general description of the sett, canal tunnel, lodes, and strata, given by Messrs. Wolfertan and Murray in their respective reports, dated 12th and 23rd March last, I confirm. Although there are several promising lodes in the Taviastock district, independent of the *Wheat Crebor* lode, and others immediately adjacent thereto, I think the efforts of the company should be first and foremost directed to the exploration of the main lode, in the west or Beaufort's set, and the lodes and branches running parallel to the main lode in the old sett. The main lode has been explored from east to west by an adit level, 750 fms. in length; and at the western boundary of the sett the end is upwards of 80 fms. beneath the surface of the ground. Under the adit level, workings have been carried on to a great extent from five shafts. The first or easternmost of which is Cock shaft, about 200 fms. from the mouth of the adit. The respective depths of the shafts are:—Cock shaft, 126 fms.; Gill shaft, 24 fms.; Smith shaft, 87 fms.; Kelly shaft, 126 fms.; Gill shaft, 126 fms.; and Rundle shaft, 24 fms. Cock shaft is the present engine-shaft, and by the 24 fm. level, with which it is connected by a cross-cut, the old workings from Smith and Kelly shafts may be drained to that depth by the present machinery. The 24 fm. level has been driven west from Cock shaft 140 fms. of which upwards of 100 fms. were in a course of copper ore, the most productive of any known in the Taviastock district, until the advent of the Devon Great Consols Mines. These latter lodes, however, being Gill shaft and Rundle shaft, are not connected with those of the *Wheat Crebor* lode, but are divided from them by a cross-cut, and are independent. The drainage was formerly effected by pumps, worked by means of flat-rods connected with a powerful water-wheel near Cock shaft; and as no pumping machinery is now in existence at Gill and Rundle shafts, they cannot, in the present state, be used below the adit level. The great deposits of ore formerly worked in this mine were found in the neighbourhood of Cock, Smith, and Kelly shafts, to extend in depth, from the bottom of the adit level to the Gill shaft, down to the 60 fm. level; at Gill shaft above the adit level, and at Rundle shaft, from the level above the adit level, nearly down to the 26 fm. level. Parallel to the Crebor main lode are several other lodes and branches, some of which are included within a limit from 35 and 40 fms. north, and 25 fms. south of it. These lodes and branches are only, so far as I can learn, been tried very partially by any works connected with the old mine, and their existence is chiefly known from the discovery of their backs at surface. At Gill shaft, the northern and middle branches, some of which lode, were tried near the cross-course above the adit level, after the mine stopped, and some of them were also tried in the level about 16 or 17 years since. Some of them, I am informed, realised 1500*l.* profit; but the lodes were not worked, nor seen or tried for there or elsewhere, except by some trifling drivings from Cock shaft on the south lode, which drivings were all above the level at which the ore made in the main lode, and, consequently, could hardly be expected to be successful.

Nearly all the deposits of ore found in Crebor Mine have been caused by the happy combination at the same points of a lode, a cross-course, or other intersector, and a stratum of killas favourable to the deposit of copper ore in the lode. Between Cock and Kelly shafts the lodes traverse a good stratum of killas, and are intersected by two cross-courses and a flooken, behind each of which intersector a deposit of ore has been made in the main lode; and the three deposits uniting together formed apparently one great deposit, upwards of 100 fms. long by 50 fms. deep, and in some parts 3 or 4 fms. wide, and extending nearly as far as a solid or clay vein, which is said to have heaved the lode, and rendered it doubtful whether the 40 fm. level was driven by the ore thus taking place in the lode, or upon a branch. An unfavourable change in the nature of the stratum, immediately west of the alide, it does not appear very probable that any deposit of ore will be found near the west side of the alide, which view of the case appears to be confirmed by the fact, that the 40 fm. level below alid has been driven nearly 120 fms. west of the alide, without any discovery of ore being made thereby.

Near Gill shaft a cross-course occurs, and, west of this cross-course a very favourable change takes place in the killas, which becomes highly favourable to the deposit of ore in the lodes, as is shown by the great courses of ore found near Gill and Rundle shafts. The same lode, between the shafts of Cock, Smith, and Kelly shafts, traverse the same favourable stratum of killas, and are intersected by two cross-courses as the main lode; there appears, therefore, every reason to suppose that the parallel lodes and branches at or below the 24 fm. level may be enriched on the west side of the cross-course, &c., in a manner similar to the main lode.

To illustrate this hypothesis, I send a couple of rough sketches herewith, showing the main and parallel lodes near it, the cross-courses, and other intersectors, and the run or bearing and dip of the killas beds. Of the latter, those shaded darkly are unfavourable to the deposit of copper ore in the lodes, and those of a light colour are good.

The shareholders perhaps note, that Messrs. Wolferstan & Murray corroborate the great probability of finding rich deposits in the side lodes, opposite to where the great deposits of ore took place in the main lode. I would strongly recommend that the lode north of the main lode should be costeared for, so as to ascertain its exact position, and also the more convenient cross-cut, N, O, P, from the 24 ft. level, should be driven to cut all the parallel lodes above it, or below it. Success are very great, and one good discovery there will set the mine fairly on its legs. From Rundle shafts and workings on the east side of the main lode, the water can be drawn off by means of a pump, and comparatively small amount of cost for dead work, usually a very heavy charge in new adventures. At Gill shaft also, cross-cuts to the parallel lodes above the adit, M, Q, should be driven, the latter first. The ore raised near Gill shaft was very rich, being of a fine soft quality, worth 80 to 90 per cent. for copper, whereas the ore found in the eastern part of the mine is hard and much more impregnated with extraneous matter. When the parallel lodes are better known, it may be determined whether the best course is to go north and south, or from some other part of the workings further west. It seems most convenient. I am told that another lode or branch fell into the main lode, at Rundle shaft, and to this cause, perhaps, as well as the action of the neighbouring cross-course, may be attributed the deposit of ore found there, and said to have realised 30,000£. The end of the adit has been driven close home to the western boundary of the old sett, but the acquisition of Mr. Beaufort's land has removed the present boundary 220 fathoms further west, and it will be necessary to clear up the adit level, west of Rundle shaft, before driving can be commenced. It is true that the ground is good now, but of this there is no certain evidence. One of the whims lately purchased of the Dundee Mining Company should be erected at this shaft, but I would not recommend any great expenditure on this part of the mine, until the exploration of the side lodes, near Gill, Kelly, Smith, and Cock shafts, has been well pushed forward. If our expectation of discoveries will make this plan as all realised, I think 1000£, or 1200£, with judicious management, will make them put the mine in a self-supporting position. The 40-feet wheel is a very years. The expenditure of a few pounds will fulfil all the requirements of the mine, at least for many years. The Tavitock Canal serves as the water supply to the mill, and during the wet season the water from the Tavay river to the wheel, and the supply of water is almost unlimited, both for pumping and driving, all necessary machinery for crushing, stamping, &c. The canal, which passes through the sett, close to Cock shaft, connects the mine with Tavitock river, and renders the carriage of ores and materials most easy and economical. In respect to power, and easy carriage, it is almost impossible to be better situated than is Grebor Mine. Buildings are not in very good order, but 160£ or 172£ will make them fit for present purposes. As regards the future prospects the complete satisfaction with our future prospects in this adventure, which the inspection of the property has afforded me. The sum of 325£, to be paid to the old adventurers for the sett and materials, I consider to be a very fair bargain.—ARTHUR DEAN.

PORTRAIT OF MR. BRASSEY.—Mr. Newenham has completed the portrait of this gentleman, the eminent railway contractor, which is to be presented to Mrs. Brassey by the committee associated for that purpose. The picture will remain for inspection at the Caledonian Hotel, Adelphi-terrace, until Saturday, the 15th inst., when it will be transferred to the engraver.

NORTH-WESTERN RAILWAY.—On Saturday this line between Skipton and Lancaster was opened throughout for public traffic. Five trains run daily, and passengers are conveyed over the line from Leeds and Bradford to Lancaster and Kendal without change of carriage.

THE NATIONAL BRAZILIAN MINING ASSOCIATION.

The peculiar circumstances which, for the past few years, have attended these mines—the fact that, from 1835 to 1846, the adit was driven in hard unproductive ground, actually only a few feet from, and parallel with, the vein—the patience and perseverance through which the establishment was kept together—the decided and satisfactory progressive improvement which has marked the advancing work since 1846—and the prospects which are now open of future prosperity, render every information, every document connected with the adventure, of much interest; and we have no doubt the following report, by Messrs. Edward Oxenford and William Hamilton (the directors), will meet with that attentive perusal which it deserves, and their feelings and motives in coming to the decision therein explained be duly appreciated.

DIRECTOR'S REPORT.

At the present moment, when a prospect has opened upon this association brighter than any which has cheered it for many years, we have considered that it would be interesting to many men, as well as to some of our old shareholders, briefly to trace the history of our mines since we came into possession, and also to refer to some matters which, though in a measure personal to ourselves, have still a strong bearing on our common interest. It will be seen by a reference to former reports on the Cocos Mines that the primary work of this association was to continue an adit, planned by Mr. Ferdinand Halstead, a German engineer, and driven by the Brazilians, under his direction, from the year 1835 to 1838. The object of this adit, which was advanced from north to south, was to intersect, at a considerable depth, the Serra Velha lode, running from west to east, thereby freeing the old mines from water, and forming an easy and inexpensive passage for the exit of the ores. The mines intended to be worked by means of this adit were the Cavaco and Terra Chahida. The Cavaco is to the east—the Chahida to the west of the adit. The lode was intersected in the year 1835; the auriferous stratum was driven through; but, from a culpable neglect of sampling, remained undisturbed and unworked. The adit, which was now extended easterly, for the purpose of working the Cavaco Mine, was, in consequence, not driven on the auriferous stratum, when it would probably have at least paid its own expenses; but, from the year 1835, was driven at a dead loss through hard unproductive ground, till the beginning of 1846, when a discovery was made that the auriferous bed, containing the veins, was running parallel with, and within a few feet of the adit. One of the results will be seen in the following statement of the produce from the Serra Velha lode, before and after the discovery—1845, 734, 104, 94; 1846, 892, 143, 14; 1847, 473, 133, 104; 1848, 523, 34, 34; 1849, 511, 48, 14. Although there is apparently a slight falling off in the produce of 1849, as compared with that of 1848, still it is not still the case, as the above only shows the amount of gold which had arrived, and been sold in London, up to the 31st December in each year, but not the quantity actually raised from the Serra Velha, which will be seen by the following statement, dividing the years into quarters—

1848—First quarter	.....Mzs. 33 4 1 33	1849—First quarter	.....Mzs. 53 1 6 31
Second ditto	.....54 6 2 42	Second ditto	.....62 3 7 38
Third ditto	.....48 6 0 33	Third ditto	.....94 6 1 7
Fourth ditto	.....36 4 6 7	Fourth ditto	.....165 3 1 44

173 5 2 63

378 7 0 48

In our last report the following statement occurs—“Imbedded in the auriferous stratum already mentioned are two small gold veins, and these, underlying at different angles of inclination, must, without some subterranean disturbance, which no one can foresee, come into contact at a given point, when, according to all mining experience, a rich deposit of gold may confidently be expected. The mine captains are of opinion that the junction of these two small veins will form, or lead into, one of the main veins of that section of the Cocos Mines called Cavaco, and they expect that that junction will take place between the 15th and 16th levels below Irving's shaft.”

The prosecution of the work has led to the discovery of a third vein in close proximity with the other two, and from a produce of upwards of 5 and 6 lbs. of gold having been more than once extracted from it in a single day, its intersection at an increased depth is regarded with the greatest interest. This was, probably, one of the main veins of the Cavaco Mine, which became impoverished by being split into three branches or shoots of gold, but which it is confidently expected will re-unite at about the spot above indicated; when, as already stated, returns in some degree corresponding with the former character of the mine may reasonably be looked for. Preparations are making for sinking to the desired spot, and the work will be prosecuted with all the vigour which the funds of the association will allow.

The adit above-mentioned has also been extended westerly for the intersection of the veins of the Terra Chahida Mine. This work has proceeded very slowly, and only at intervals, as a few men could be spared from other parts, but several favourable indications having occurred, it has been prosecuted latterly with greater vigour. Nothing very certain is known respecting this mine. Tradition states it to have been very rich—extensive surface-works mark its former importance—and its name, Terra Chahida (fallen earth) points to a crash and a catastrophe.

The works in progress at Cocos, from which a more brilliant success is expected, have led to the withdrawal of a great part of the force from Culis. One English miner, with a few efficient negroes and Brazilian labourers and mechanics, have been employed in keeping the works in repair, laying bare the lode, and opening passes for future operations. The mine captain reports that there is an immense mass of solid ore, the perpendicular height being 195 ft. the width being 64 ft. “with more than 240 ft. of commencing sloping on.” In this height and extent of ground, he states that there are four levels opened for the exit of the ores, that a very large force might and ought to be employed, and that every two negroes could realize, to a certainty, even in the poorest state of the stone, 1½ lbs. of gold per diem, which would be more than double the expenses. The importance of this statement is self-evident, and we immediately directed our commissioners to put themselves in communication with our agents, Messrs. F. B. Ker, Collings, and Co., of Rio de Janeiro, whom we at the same time instructed, in case of the above facts being verified to their satisfaction, to supply them with funds to any extent, to which they could be employed with a certainty of profit.

The account current for the past year is annexed—it tells its own tale; it is audited by Messrs. Corney and Greenaway, two of our shareholders. The only observation we have to make upon it is that the rise in the exchange has increased, by about 20 per cent., the sterling charge for all millinery payments made in Brazil.

We now feel constrained to intrude a few words regarding ourselves. We do so very reluctantly, but we consider it of great importance that all parties concerned should have a clear and perfect understanding of our position and circumstances. Our situation is, indeed, one of a singular, if not of an unprecedented, character; it has not been of our seeking, but has been forced upon us by a concurrence of events we could neither foresee nor control.

At the public meetings we have called for co-operation and assistance upon several of our responsible and respected fellow-adventurers. We sought for gentlemen whose circumstances would have enabled them to divide our burthen, and to whom we would gladly have given a participation of our trust; but our call was unanswered, and we have been left alone to bear the whole weight of advances and responsibilities of no ordinary character, or to incur the odium of prematurely stopping the mines at a period when they appeared to afford the most solid hopes of success. Indeed, many persons holding largely of our shares, the payment of whose instalments would have alleviated us in the hour of difficulty and distress, and enabled us to carry on the works with vigour, have cautiously—can we say honourably?—withheld their payments, anxious to profit by the risks and money of their neighbours, if successful; and, in the event of failure, equally anxious to avoid their fair and just contributions. The number and clamour of such as these have been predominant at public meetings, and forced the adoption of the resolutions (more especially those respecting defaulters), while the opinion and interests of the real shareholder have been disregarded. After mature reflection upon this and other circumstances connected with the pecuniary position, we have determined to hold a public meeting until we are able to declare a dividend. We neither require nor would sanction any further call upon our shares; the concern must now be supported by its own resources, or be wound up for want of funds. These are our opinions—this is our determination. Should they be found in accordance with those of the many gentlemen of high character and standing who have so long, and through so many trials, honoured us with their confidence, we are willing to continue our services; but if a contrary opinion should be maintained, we should immediately resign our position, and our shareholders, who are as willing to resign our post to others, perhaps able than ourselves, but not more desirous than we are to perform the duties of our position with a zeal, integrity, consistency, and honour, alike creditable to ourselves and beneficial to the interests committed to our charge.

The following is the Statement of Accounts from January 1 to December 31, 1849—

LIABILITIES.		
Bills drawn in Brazil, and paid in London, for one year's current expenses at the mines, including salaries and wages.....	£2943	14 0
Wages and passages paid in England, and mine stores sent to Brazil.....	669	5 5
Freight and insurance on gold.....	139	18 10
Advertisements and sundry petites.....	58	4 6
Interest on loans.....	453	8 11
Direction, auditors, notaries, stationery, postage, and messenger.....	950	0 0
Repayment of advance by Messrs. Oxenford, Hamilton, and Hartley.....	1650	0 0
Cash at bankers on 31st December, 1849.....	98	14 6
Total.....	£13,353	1 2
ASSETS.		
Balance at bankers 31st December, 1848.....	£1843	10 3
Sundry instalments on shares.....	340	0 0
Proceeds of gold received from the mines—Per <i>L'Année</i> , 1210, 166, 54, 2; <i>Sonnet</i> , 1171, 174, 92, 6; <i>Express</i> , 1937, 16, 44, 34; <i>Requill</i> , 1604, 64, 114; <i>Express</i> , 1937, 16, 44, 34;.....	7425	17 2
Return premium on gold.....	17	4 3
Advances made by Messrs. Oxenford and Hamilton.....	3896	9 6
Total.....	£13,353	1 2

GLASS.—A return has been published relative to the export and import trade in foreign and British glass, from which it appears that in the year ending January, 1850, the following quantities of foreign glass were imported:—Of window glass, white or of one colour not exceeding one-ninth of an inch in thickness, 25,555 cwts., of which 7671 cwts. were retained for home consumption, producing 1208½ duty, at the rate of 8s. 6d. per cwt.; of all glass exceeding one-ninth of an inch in thickness, silvered or polished, 68,106 square feet, of which 61,946 were retained for home consumption, producing 1224½ duty; of glass painted or otherwise ornamented, 2701 square feet, of which 841 were retained for home consumption, producing 812 duty, at 3s. per square foot; of white flint glass bottles, not cut, 47,896 lbs., of which 53,326 lbs. were retained for home consumption, producing 484 duty, at 1d. per lb.; of all other white flint glass goods, not cut or ornamented, 71,502 lbs., of which 27,805 lbs. were retained for home consumption, producing 114½ duty, at the rate of 1d. per lb.; of cut coloured or ornamented glass of all kinds, 723,717 lbs., of which 571,336 were retained for home consumption, producing 4762½ duty, at the rate of 2d. per lb.; of other glass, not otherwise described, 168 cwts., the quantity retained for home consumption being 134 cwts., producing 22½, at the rate of 8s. 6d. per cwt. The quantities of British glass exported during the same period have been as follows:—Flint glass, 12,184 cwts.; window glass, 17,886 cwts.; plate glass, 64,920 square feet; common glass bottles, 233,108 cwts.; looking glasses and mirrors, to the value of 6597.

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—Field's engine-shaft is sunk 6 ft. under the 70 fm. level, lode from 8 to 8½ ft. wide, principally arenaceous mudstone, which we hope is indicative of a good course of copper ore. The 70 fm. level is driven 11 fms. east of said shaft; the lode, for nearly the whole of the driving, has been from 4 to 6 ft. wide, and is in the present end 4 ft. wide, worth 70½ per fm. We hope to resume the driving of the 70 fm. level, west of engine-shaft, at our next setting on the 8th inst. The lode of the 60 fm. level, west of shaft, has, during the past week, been a little larger, and the change has produced a small increase of water, which we hope is a favourable symptom. In the 60 fm. level east the men are at this time driving south, to ascertain the width of the lode. The lode in the winze sinking under the 60 fm. level, east of Field's engine-shaft, is about 4 ft. wide, just all solid ore, worth from 60 to 70½ per fm. Wyld's shaft is communicated to the 4 fm. level; there is no change in any other of the tailwork operations since last report. Our tribute pitches, on the whole, are looking well.

BARRISTOWN.—The lode in the 80 fm. level east is rather improved since last week, although, at present, it is of no value for lead; a small branch forming on the north wall contains more lead than last reported. The stopes in the back of this level, and the bottom of the 86 fm. level, where we have been sloping, look very poor; a side has cut off the lode in the back of the 80 fm. level. The winze in order to expedite it, has been sunk on the flanks of the new lode, which you can see by referring to my small plan, and, consequently, left a cob of the flanks against the eastern part of east and west lode for about 3 fms. high; we have put the men to take this winze, in order that that part of the lode may be seen at the present depth of the winze, 10 fms. under the 80 fm. level. In the west end the lode is poor and irregular, but we consider there is another part standing to the south of the level. The 30 fm. level is suspended; the lode in it is large and poor, very thinly mixed with lead. In the rise in the back of this level, to the 18 fm. level, we had a good lode for a day or two this week, which, if it continued, would produce from 5 to 10 cwts. of lead per fm., but at present it is cut out. The stope in the bottom of the 30 fm. level cannot be worked until the winze is holed to the 40 fm. level. We have in the 40 fm. level, driving towards the winze, a wall, which we consider the commencement of the new lode, towards the black ground.

BEDFORD UNITED.—The lode in the 103 fm. level east is 3 ft. wide, and yielding 4 tons of good ore per fm. In Andrew's winze, in this level, there has been no lode taken down; the lode in the stope, in the back of this level, is still worth 18½ per fathom. There has been no lode taken down in the 90 and 80 fm. levels. In Brays winze, in the 90 fm. level, the lode is 2 ft. wide, and worth 4½ tons of ore per fm. There is no change in the 70 fm. level. We weighed, at Morwellham, on Friday last, March ores 115 tons 7 cwt. 3 qrs., and sampled April ores, computed 118 tons.

BRYN-ARIAN.—The engine-shaft is now down 9 fms. 5 ft., and, until last Friday, the lode continued to yield upwards of 1 ton of ore per fm., when a slide came into the shaft, and very much disordered it. We have sunk 3 ft. in the slide, and are not yet quite through it. There has been good stope in the slide; therefore, we have no doubt but that the lode will make equally as good under the slide as above. The eastern 10 fm. and is much as last reported—a large lode, but poor at present. We have cut through the lode driving north from the 10 fm. level west, and find it from 14 to 16 ft. wide. The men have now commenced to drive west on the course of the lode; the part they are carrying for the level will yield from 12 to 15 cwts. of ore per fm., and the lode is impregnated with ore throughout. The stope under the adit level east will yield about 12 cwts. of ore per fm. The stope under the adit level west will produce 1½ tons of ore per fm. We sampled 30 tons of ore on Thursday last, the 6th inst.

CALLINGTON.—The lode in the 125 fm. level north is about 8 in. wide, producing occasional stones of ore, ground a little more favourable for driving. The lode in the 135 fm. level south, where the counter-sinkers level ore per fm. The stope in the south is suspended for the present; the men are now engaged in sinking a winze below the 100 fm. level, to ventilate the lode below; this being done, we shall resume the driving of the 112 south again. The diagonal shaft, sinking below the 100 fm. level, is now down about 8 fms.; we calculate it will take us about a fortnight, from the present time, to complete this shaft to the 112 fm. level. In the 112 fm. level north, at the south mine, no lode has been taken down since last reported. The lode in the winze sinking below the 112 fm. level south is promising; we calculate this winze will take us about 10 fms. to the level below. At Kelly Bray we are sinking the shaft below the 40 fm. level, by nine men, at 11½ ft. per fm. Our last parcel of silver-lead ore, computed 43 tons, sold to the Tamar Company, realised 17½ 14s. 6d. per ton.

CARADON UNITED.—Last month we had to cut a pit in the 60, which is accomplished, and also to put a rise from the 60 to the 55, for ventilation. Our driving last month in the 60 was 9 fms. 2 ft. 4 in., at 1½ ft. per fm.; a part of this driving was by the side of the lode, to clear the crushed ground. Last Friday, 3 fms. behind the east end, we commenced to take down the lode; at this place we find its leading part to be 18 in. wide, and worth full 12½ per fm. for tin, which I call a good course of tin in this sort of ground. The end west is promising, but poor. In this level we find Morshed lode has very much changed its character for the better; in the levels above it was from 6 to 10 ft. wide, and contained very much iron. In the 60 it is greatly less, and is now carrying at 2½ ft. per fm.; this is a promising lode; by driving this 50 cross-cut about 11 fms. further south, we should cut another lode, and near the surface there was some tin ore on it, and about 20 fms. still further south we should cut three other lodes, two of which are large and promising; and will be very near together in this level, if they keep their present underlay; and would strongly advise you to push either the 50 or the 60 cross-cuts to intersect these lodes.

COMBLAWN.—The pitwork not being ready before, is because the smiths could not get their work ready quick enough, on account of the shop being so small as not to admit of more than three men to work at a time, which we had day and night; now our pitwork is all fixed, and I hope to be working by Wednesday or Thursday to begin to work. The shaft is full of air, and we have no more to do; and if the ground is firm enough, I expect to get it cleared up to the depth of 20 fms. in four months. It is now time to order the iron for the rods, which will work the lower mine, and the smiths will get on with that work while we are clearing the old mine; it will take 130 fms., of 3½ round crown iron. We are also in want of a larger smith's bellows to make the joints with.

CRADDOCK MOOR.—Dunstan's lode in the shaft, 12 fms. under adit, is now 3 ft. wide, of which 9 inches is black and yellow copper ore, gossan and quartz—a very kindly branch, which is rarely seen in any part of this country; there are specks of ore in the other parts of the lode. It is intended to continue to carry the shaft, perpendicularly, and also take away the lode northwards (in which direction it is a plan from which to drive on the lode. This Dunstan's lode will be likely to fall in with Vivian's lode in a few fms. sinking. Vivian's lode, in West Caradon, 65 fms. from Craddock Moor set, in the 17 fm. level, now produces about 1½ tons per fm., and has been productive for the last 50 fms., in some places 3 tons per fm. The adit level on Vivian's, in West Caradon, is now 2½ ft. wide, and is a promising lode, but is now as good as the 17. About 40 to 50 fms. north of Craddock Moor shaft, if we drive on the cross-course, on which the adit shaft is being sunk, we shall intersect Glyn's lode of West Caradon, and 20 to 30 fms. further Taylor's lode. Glyn's lode, in the 17, is now within about 70 ft. of Craddock Moor, and produces about 3 tons per fm., worth about 36½. From the foregoing, it is apparent that the prospects at Craddock Moor are very favourable. The Menadue lode of West Caradon will come into Craddock Moor shaft in sinking, but will probably be first cut by driving south from the shaft.

DAREN.—We have holed the level Coed adit into the old works, with good ore for some fathoms before we holed, that will come away at good profit. There is also excellent ore in the adit level, and at the mouth of level Coed; and we expect to get the new level into the lode in the course of a month, or to below level Coed, which will give us a good back of oreground. The wheel is up and working; that is, revolving, for we have nothing attached to it yet. I am glad to get the invoices of crusher and mills. You will like to hear of our holed level Coed adit, as we shall soon now be into the heart of the old mine.

DEVON AND COURTENAY.—The lode in the engine-shaft is still producing some ore, and the sumpmen are working well and progressing favourably, having sunk during the last three weeks 10 ft. The ground in the 50 end is hard and unproductive. The ground in the rise, from the 50 to the 40 fm. level, is more favourable for raising, and I expect to put it through to the 40 by our next setting day. The next pay and setting day will be on Friday, the 14th inst.

EAST CROWDALE.—We have commenced driving the 40 fm. level east of middle shaft; the lode is large and easy for driving, producing a little tin. About the middle of next week we shall commence the cross-cut with Harris's shaft, where we shall be able to set several tribute pitches in the back of the 38 fm. level, and also drive an intermediate west of middle shaft, between the 28 and 40 fm. levels, so as to prove the bunch of tin sunk through in the shaft. No alteration in our tribute department worth notice. Enclosed you have the smelters' offers for the last parcel of tin, computed 12 tons, but I hope it will exceed that quantity. The tin will go off for Plymouth on Tuesday; it would have gone on the 1st inst., but I have not yet received the Charlerton and Bischoff offers.

EAST WHEEL GEORGE.—The men are sinking the engine-shaft with all possible dispatch, and there is no reason to doubt of its being down to the 12 fms. contemplated in three weeks from the present time, as they are now sinking 9 ft. per week. The stratum is a blue killas, conglomerate; in fact, there are occasional branches of speck impregnated with bright yellow ore, in sinking through the country, and every indication presents itself of having a good lode, when intersected by the cross-cut. The wheel works well, and the other parts of the machinery, floors, &c., will be ready in time.

GONAMENA.—We have nearly 30 tons of ore broken, and expect to sell above that quantity in a few weeks. This was raised in sinking under the 60, when a winze is carrying down to meet the 80 fm. level coming forward, which is now now having yet come under the productive ground above. There is a pitch working in the back of the 60, at 7s. in 12. The 60 end east remains as last reported, producing a ½ ton of ore per fm. The 28 is not yet commenced. The 80 west has been commenced, and a little ore found.

HEIGNSTON DOWN CONSOLS.—The lode in the 35 fm. level, east of the cross-cut, maintains its size, and is carrying a solid leader of superior quality ore, 16 in. wide. The lode in the winze sinking below the level is 2 ft. wide, producing some good saving work for copper ore. The cross-cut south in this level is much as last reported on. The lode in the 45 fathom level, east of victor's shaft, is large, and has produced some good stones of ore in the past week. In the cross-cut south in this level the capels are being spotted throughout with copper ore.

HOLMBUSH.—We have met with another cross-course in the 132 fm. level, west of the diagonal shaft, which is letting down a pretty deal of water, so much as to enable us to set the pitch over it, at 4s. in 12, for copper. The ground in the 130 fm. level cross-cut south, towards the flap jack lode, is very much improved, having cut a large vash, or fissure, in the bottom of the level, on the eastern side of the great cross-course, with stones of lead in it; we have set it to drive by six men at 40s. per fm., and 2s. 6d. in 12 tribute. The lode in the 120 fm. level south is 7 ft. wide, composed of soft quartz and stones of lead, a very promising lode, and is again set to drive by four men at 30s. per fm., and 2s. 6d. in 12 tribute. We have resumed driving the 110 fm. level south, on the lead lode, by two men, at 50s. per fm. The flap-jack lode, in the 109 fm. level, east of the great cross-course, is 2 ft. wide, composed of mudstone, spar, and stones of copper ore. The three pitches in the back of the level are set to four men, each at a tribute of 4s., 8s., and 10s. in 12. We sampled at Calstock Quay, on Friday last, a parcel of copper ores, computed 128 tons.

KESWICK.—At Brandy, the 10 fm. level rise is not quite so good as last reported. The sump in Salt level is about the same as last week; a cross-cut in this level has been made, for the purpose of getting at a bunch of ore which is going down from a sump above. At Thornethwait, the 17 fm. level, looking very promising, and affords a capital prospect, as we are coming into the ore ground with no loss of time, and the surface. The 17 fm. sump, on string, is not looking quite so well; we are driving a cross-cut at this level on the vein. We have ore here which will pay for working, but the best ore is going down, and is expected will meet that going down in the string. The bottom level continues to improve. We have put on two men to clear out a level in the old Brandy Mine, which, on careful examination, offers a very good prospect; if it turns out well, it will be a famous thing.

KIRKCUDBRIGHTSHIRE.—At Keith's shaft, the lode in the 62 end west is 4½ ft. wide, containing good stones of ore, worth about 7 cwt. of lead to the ton. The lode in the winze, coming down on this end, is very kindly, worth about half a ton to the fm. The lode in the 50 end west is still large, and nearly all blackstone, but without lead. The lode in the rise in the back of the 40 west is very kindly, worth half-a-ton to the fm. The winze being out again to the 62 fm. level, the men have all resumed working.

LEWIS.—In the 80 fathom level there is no alteration since my last report. Cock's lode in the 70, east of copper ore shaft, is 4 in. wide, worth 3½ per fm. Cock's lode in the 60, east of copper ore shaft, is 10 in. wide, worth 4½ per fm. The 50 fm. level is suspended on Cock's lode, until ventilated by the cross-cut from tin shaft. Cock's lode in the 40, east of copper ore shaft, is 1 ft. wide, worth 8½ per fm.; ditto west, the lode is 1 ft. wide, worth 4½ per fm.; the south lode in this level east is 6 in. wide, unproductive. Ralph's lode in the 30 fm. level, east of copper ore shaft, is 3 in. wide, opening tribute ground; the south lode in this level, east of copper ore shaft, is 3 ft. wide, worth 10½ per fm.; ditto west, the lode is 6 in. wide, worth 4½ per fm. The south lode in the 30, east of copper ore shaft, is 1 ft. wide, worth 4½ per fm. In the 20 fm. level cross-cut, south from copper ore shaft, we have intersected Cock's lode, producing stones of tin. In the 80 fm. level cross-cut, south from tin shaft, we have intersected a lode 6 in. wide, good work for tin. This lode has not been seen in any other part of the mine; I hope it may prove a good lode. We shall sample 30 tons of tin on Friday next.

LLWYNMALES.—The 8 fm. level and the stopes over it are much the same as last reported. We have had a great deal of rain lately, but it does not do so much good to the pool as we could wish. We have 4 ft. 6 in. of water in the pool to-day, but our crushing being now so heavy will soon run out this water.

NORTH WHEEL FRIENDSHIP.—The sinking of Baller's engine-shaft has been continued, and is now down about 84 fms. below the 30 fathom level; the lode is still composed of black floukan, mudstone, and portions of quartz, with scarcely any alteration in its appearance since last reported on. In the 26 fm. level, driving north from rise, the lode is 16 in. wide, producing good work for lead. In the 23 fm. level, driving north from the above rise, the lode is 20 in. wide, worth 10 cwt. of lead per fm. The lode in the 32 fathom level, driving south from rise, is also producing good stones of lead. In the rise, putting up from the 26 fm. level, the lode has a kindly appearance, laying open fair tribute ground. The two pitches working in the new ground are looking well; there are other pitches working in the old mine at higher tributes. I hope to get ready in a few days about 20 tons of lead ore for sale. The following is the number of hands now employed, and the rate at which the work is being done:—Sinking the engine-shaft, at 10 guineas per fm., by six men and three wages men; rise in the back of the 24 fm. level, at 5s., by three men; driving level north ditto, at 4s., by two men; ditto south, 32 fm. level, at 8s., by two men; ditto north ditto, at 7s., by two men. Pitch, back of the deep adit, at 7s. 6d. in 12, by two men and two boys; ditto 24 fm. level, at 9s. 6d. in 12, by two men and two boys; ditto, at 13s. 9d. in 12, by two men and one boy; two pitches in the old mine, at 14s. in 12, by two men and two boys.

PENZANCE CONSOLS.—The bottom level is much the same, and there is a good lode of tin in the 18 fm. level west, much better than at the last report, and in driving further west we expect to cut Eliza's lode; this has been wrong once or twice in length in the past, and has been a great deal of trouble to the mine. The lode in the 18 fm. level is looking exceedingly well, and we have a good course of tin on this lode. In a winze to the west, on the north lode, we have also a good course of tin, and this has very much improved within the last few days. All the backs over the 18 fm. level is good tin ground, and, on the whole, I believe we never looked better.

SHEBA (STOKELIMSLAND).—I took an opportunity of visiting this mine last week. The principal lode is 5 feet wide, about 1 mile west of the Devon Great Consols, and believed by many to be the same lode. The indications are similar to those of the Devon Great Consols. I was much pleased to see rocks of copper ore broken, or, indeed, quarried out, almost at surface. Many experienced miners, from curiosity alone, have visited the spot, and all concur in one opinion.

June 6.—We have commenced rising in the back of the adit, on the course of the lode, which is 7 feet wide, by four men, which is impregnated throughout with copper. We have a solid mass of bright yellow copper on the footwall. We have this week been visited by a gentleman who, after taking a minute survey of the mine, both underground and at surface, stated that the reports he heard, although flattering, did not at all come up with the prospects held out, according to his opinion. He also took some of the copper with him to show to his friends, who, I understand, are inclined to take shares. The mine will shortly be inspected by some experienced and practical agents, so that they may give their opinion on the future prospects of the mine, and on the value of the lode, and also in that from Howarth to Sney's level, we are sloping away the ore in the lode, producing from 1½ to 2 tons per fm., at a cost of about 25s. per fm. We have now upwards of 30 tons of ore ready for shipment, and expect to have similar parcels in regular succession.

SNOWDON.—Since the recent inspection by Capt. Verran and Mr. Smith, on behalf of the new company, we have extended our operations very considerably. At present our mining force is increased to 24, and we are about to set the upper levels on tribute, which will give profitable labour to numerous other miners in this neighbourhood. Price's level is already set on tribute at 10s. in 12; and in the 20 winze, going down from Price's level, we are also in that from Howarth to Sney's level, we are sloping away the ore in the lode, producing from 1½ to 2 tons per fm., at a cost of about 25s. per fm. We have now upwards of 30 tons of ore ready for shipment, and expect to have similar parcels in regular succession.

SOUTH WALES MINES.—The south, or Frongoch lode, in the 12 fm. level, east of the cross-cut, is much the same in its general appearance as when last reported, producing a little lead and copper; but not sufficient to set a value on. The lode in the shaft, 100 fathoms east of the old workings, is much improved since my last report, and has a very promising appearance—being from 3 to 4 ft. wide, and will at this time yield about 10 cwt. of ore per fm.

SOUTH WHEEL TRELAUNY.—The engine-shaft is in course of sinking below the 50 fathom level by six men, ground favourable—a deep blue killas strata. We are also driving north to the west of the shaft, in the 50 fm. level, on the course of the lode, the lode is 3 feet wide up half the end, but it is not quite so large in the back, composed of fluor-spar, barites, killas, fine grained mudstone and crystals of copper ore, and spots of lead taken out in the last week, ground favourable. Since last report the lode has improved in character, everything is in a regular course of working.

TAMAR SILVER-LEAD.—In the 205 and the lode is 18 in. wide, chiefly composed of capel, with strings of ore. In the 190 end the lode is 2 ft. wide, composed of quartz and ore—good saving work. In the 175 end no lode has been taken down since last report. In the 160 and the lode is 3 ft. wide, intermixed with ore throughout. In the 145 and the lode is 2 ft. wide, composed of mudstone, capel, and ore—saving work. In the 135 and the lode is 6 in. wide, composed of mudstone, with silver-lead ore. I am glad to say that the men are making good progress in taking out the ground in the mine. The lode, level, and hope it will be completed in a fortnight from this time. In the north mine, the engine-shaft is down 9 fms. 3 ft. 6 in. below the 80 fm. level; in the end driving north, in this level, the lode is 1 ft. wide, composed of peach, prlan, and ore—good saving work. We sampled, on Saturday, the 1st inst., computed 80 tons of silver-lead ores—samples of which have been sent to the different smelters as usual.

TINCROFT.—In the 100 fm. level, driving west of Palmer's shaft, the lode is 2 ft. wide, worth 6½ per fm. for copper. In the 90 fm. level west the lode is 3 ft. wide, worth 5½ per fm. for copper. In the 80 west the lode is 2½ ft. wide, worth 7½ per fm. for copper. In the 36 fm. level, driving west of Stainby's shaft, the lode is 1 ft. wide, with spots of ore. In the 180 level, in the 110, the eastern end of the lode is 3 ft. wide, worth 40½ per fm. for copper. In the 100 fm. level, east of Willoughby's shaft, the lode is 3½ ft. wide, worth 10½ per fm. for tin and copper; in the 100, west of engine-shaft, the lode is 8 ft. wide, worth 25½ per fm. for copper. In the 90 fm. level, east of Willoughby's shaft, the lode is 3 ft. wide, worth 10½ per fm. for tin and copper; in the 90, west of engine-shaft, the lode is 4 feet wide, worth 40½ per fm. for copper; in the winze sinking below this level, the lode is 4 ft. wide, worth 20½ per fm. for copper; in the 80 winze, going down from the 90 fm. level, the lode is 3 ft. wide, worth 12½ per fm. for copper. On Highbury's lode, in the 152 fm. level, east of engine-shaft, the lode is 6 ft. wide, worth 28½ per fm. In the 142 fm. level, east of Martin's east shaft, the lode is 5 ft. wide, worth 18½ per fm. In the 132 fm. level east the lode is 3 ft. wide, worth 15½ per fm.; in the winze sinking below this level the lode is 4 ft. wide, worth 16½ per fathom. In the 110 fm. level, driving east from Cook's Kitchen, the lode is 4 ft. wide, worth 5½ per fm. for tin. In the 10

Mr. Bosworth, as to the increase of dividends since the commencement of the management by Mr. Keogh. In mining, the exertions of a manager, however

THE NEEDLE TRADE OF REDDITCH.—We are glad to find that every branch, connected with the needle trade is in a prosperous state, and the workpeople have obtained a considerable advance in wages. In many cases sufficient hands cannot be obtained, and large orders have, in consequence, in several instances been declined.

Current Prices of Stocks, Shares, & Metals.

MINES.—Since our last, there has been (as we anticipated) a large amount of business transacted, and the enquiries for shares in most of our leading mines continue to the present time. Some have been done at a very considerable advance, and in several instances, shares that have been dormant for some time are in active request. In many mines improvements have been advised; and, from our correspondents generally, we learn that the mines throughout Cornwall and Devon, are in a most favourable and improving position.

In Trevinkey and Barrier several transactions have taken place at an advance. South Tregus shares have also been in request, in consequence of an improvement in the mine.

West Treasury, Alfred Consols, Mary Ann, Trethellan, East Buller, South Frances, Treleigh Consols, and South Bassett, have been enquired for. South Tolgus, Bedford United, Wheal Buller, and Alfred Consols are represented to have improved during the past week.

Pendarves Consols were much in request yesterday, and several transactions took place at considerable advance on former quotations. Information was received that a discovery had been made on Wednesday last in the main lode north in the 20 fm. level, which was cut with 257. per fm. The 10 fm. level, on the counter lode, was worth 107. per fm.; and the 20 and 30 fm. levels worth 54. per fm.—the latter was expected to improve daily.

The litigation which has been so long pending between the West and South Caradon adventurers and the landowners, who have claimed compensation for injury done to their land by the overflowing of the water used at the mines, is now likely to be arranged by arbitration, and competent parties appointed to assess the value of the land represented to have been injured. We learn that this suit would, in all probability, have been settled long since, had the representatives of the mines been met with that liberality and justice which should be expected from the duchy officials, in the promoting and encouraging of mining enterprise by conciliatory measures, instead of stringent and oppressive opposition.

At Wheal Bassett two-monthly account, the profit for the months of March and April was shown at 2542l. 13s. 8d., which, with the balance left from last account, gave a credit of 3060l. 19s. A dividend of 2560l. being 10s. per share, was declared, leaving a balance in hand of 500l. 19s. The mine is reported to be looking exceedingly well.

Botallack account meeting was held on the 4th inst., when the statement of accounts for the months of January, February, and March showed a balance of 808l. 10s. 6d. in favour of the mine. It was resolved to divide 500l. amongst the adventurers. The mine is represented in a very improving position.

At the meeting of the General Mining Company for Ireland, the second dividend of 5 per cent. for the present year was declared. The prospects of the company are represented in a highly favourable and flourishing condition. Arrangements have been recently made for a considerable addition to their mineral property.

At the Eagar Llee meeting, the accounts for four months, up to April, were produced, showing a balance against the mine of 272l. 7s., and a call of 1l. per share was made, which, it is expected, from the favourable position the mine is in, will clear off all liabilities, and bring the same into a paying state.

At the usual bi-monthly meeting of South Tamar shareholders, the statement of accounts showed a cash balance of 1654. 2s. 3d., and the account of receipts and payments before the next meeting, on the 6th August next, showed a balance in favour of the mine of 68l. 2s.; whilst the assets over liabilities are given at 1988l. 13s. 5d. in favour of the mine. Since the last meeting, 72 tons 2 cwt. 1 qr. of silver-lead ore had been sold, realising 1889l. 17s. 3d. The manager's report represents the prospects of the mine in a very gratifying position, and that he anticipated a large increase on the previous returns.

At the East Tamar bi-monthly meeting, the account of expenditure and receipts was laid before the meeting, showing a balance in favour of the mine of 669l. 13s. 1d.; also an account of payments and receipts to the 6th of August, showing an excess of the former over the latter of 2012. 9s. 4d. The assets showed a balance in favour of the mine of 1834l. 10s. 8d. An estimate of Whitson engine, erected for the mutual benefit of East and South Tamar Mines, was valued at 685l., one-third of which, 228l. 17s. 6d., is due from the latter mine. The secretary stated, that the highest tender for 70 tons of silver-lead ore, at 14l. 16s., was accepted on the 27th ult. The manager's report of the mine is highly satisfactory, which will be found in another column.

At the first general meeting of Caradon Vale shareholders, the usual preliminaries were entered into, for carrying on the mine with energy. The respective agents and managing committee were appointed, and the purchase of a steam-engine confirmed. The statement of accounts showed a balance of 52l. 19s. 10d. in favour of the company. A call of 10s. per share was made, payable by two instalments of 5s. each, on June 18 and August 1.

The usual two-monthly meeting of the Henneock Mining Company was held on the 4th, when the reports of Captain W. Lean and the agent of the mine (Captain James) were read, which being so conflicting in their representations, it was resolved on appointing Mr. Evan Hopkins, C.E., and Mr. Adam Murray, jun., to inspect and report upon the mine. A call of 5s. per share was made, and the meeting adjourned for a month, when it is expected the reports of the above talented gentlemen will have been presented.

At the Tavy Consols bi-monthly meeting, the accounts showed a balance in favour of the mine of 457. 9s. 4d.; although there were liabilities to the amount of 230l., still there was sufficient ore at surface preparing for market to meet the liabilities: 45 tons of ore were sampled on the 3d, being the raisings of the past month. The mine is in a more cheering position than ever before seen.

At the Pennant and Craiguen quarterly meeting, a call of 10s. per share was made. We learn that arrangements have been made with the landowner, who has consented to relinquish the heavy fixed annual rental on receipt of a certain amount, which will relieve the shareholders to a very considerable extent, and that preparations are being made to carry out the works with vigour.

At the meeting of Tolcarne adventurers, the accounts produced showed the expenses for the six months' working, including engine, boiler, &c., to be 1448l. 19s. 4d.; credit, from call made in December last, 630l. 13s. 9d., leaving 818l. 5s. 7d. against company, to meet which a call of 3l. 7s. 9d. was made.

By letters received from Camborne, we learn that Wheal Harriet is looking remarkably well, and some fine stones of grey copper ore have been taken from the adit level.

The monthly sale of lead ore from Herodsfoot Mine (80 tons) realised 1030l. The monthly sale of silver-lead ore from Wheal Mary Ann (30 tons) realised 19l. 7s. 6d. per ton, or 1743l. 15s. The report is favourable.

A call of 5s. per share has been made by the Mendip Hills directors. Favourable reports have been received from Wheal Union, and shares have been done at an advance in consequence.

Shares in the following mines have changed hands since our last:—Devon Great Consols, South Frances, Comfort, Treavene, South Bassett, Alfred Consols, Trevinkey and Barrier, South Tolgus, Carn Brea, West Caradon, Tincroft, Treleigh Consols, Penzance Consols, South Tamar, Heigston Down Consols, Wheal Franco, South Plain Wood, Devon and Courtenay, Moditonham, Marborough, Henneock, Trethrew, Wheal Langford, East Buller, West Treasury, West Tolgus, Tremayne, Bryn-arian, Trelawny, Mary Ann, Pendarves Consols, Tolcarne, West Trethellan, Lelant, Cook's Kitchen, East Tamar, South Tamar, Tregear, Exmoor Wheal Eliza, Wheal Francis, Stray Park, West Stray Park, Bodmin Consols, the Great Consolidated, and Tavy Consols.

In Foreign Mines there has been a corresponding improvement in the business done. United Mexican, St. John del Rey, Cobre and Santiago, and Imperial Brazilian, have been freely dealt in. The advices from the Linares Mines, both private and official, are of a very encouraging character; and a great number of shares have changed hands. Copiapo, Australian, Barossa Range, and National Brazilian, have also been done.

The usual monthly despatches from the Copiapo Mines was received on the 3d inst. The report for the month of February presents a very cheering account of the operations at the respective mines. The Checo Copper Mine continued to present the improvements advised in last report. The San Pedro Mine is also productive in the 12 fm. level west, and on the north lode. The La Compania, and La Reyna, were in an improving position. The produce from the mines Checo, San Pedro, and La Compania, for the month was 64 tons of copper ore. The silver mines generally are looking in a very healthy position, more especially the Al Fin Hallada Mine. In the gold mines, the prospects continue to present the most cheering encouragement, with every appearance of early improvements.

The directors of the National Brazilian Mining Association have issued the report for the year ending the 31st Dec., 1849, by which we find the proceeds of gold received amounted to 7425l. 17s. 2d.; whilst the expenditure appears to have considerably exceeded the returns, which have been met by Messrs. Oxenford and Hamilton to the extent of 8826l. 9s. 6d. But it must be observed that the amount credited in the account current as gold sold embraced only that which had arrived and been realised in London up to the 31st Dec., 1849; whereas the gold actually raised from the mines during that year amounted to mks. 375 7 0 against mks. 178 5 2 of the preceding year. The gold returns of the present year give decided promise that the produce will be considerably greater than it was during the year 1849.

Letters have been received from the Linares Mines, which are still satisfactory. There were 24 men on tribute, and 56 carrettes were loading for Seville, with 4082 arrobas of ore (about 44 tons), and about 40 or 50 were soon to follow. All the points in the mine were looking well.

At the St. John del Rey meeting, the report was received with much satisfaction, as being decidedly the most interesting, and showing the property to be in a more prosperous state than any previous one issued. Notwithstanding the heavy expenses incurred during the year, in the erection of costly machinery, a dividend of 30s. per share was declared. A large mass of ground is laid open, which will keep up a continuous supply of stone, and there is every probability of increased and continuous dividends. A large and beautifully ex-

posed diagram lies in the office, showing the monthly progress of the workings; and on so well defined a plan, that a person even unacquainted with mining could be made to understand the nature of the workings. We refer to the report in another column.

At the meeting of the Anglo-Mexican Mint Company, a dividend of 15s. per share was declared for the half-year, and a bonus of 10s. on the 10l. shares. From Copiapo we learn that many new discoveries of silver mines had been made, but there was a scarcity of persons to work them. Means to obtain men from the various Pacific ports had been taken by the different mining agents.

PRICES OF MINING SHARES.

BRITISH MINES.				BRITISH MINES—continued.			
Shares.	Company.	Paid.	Price.	Shares.	Company.	Paid.	Price.
1000	Abergwesin	9	—	1100	South Caradon	5	270
1021	Alfred Consols	85	25 36	128	South Dolcoath	5	—
1248	Alli-Crib	5	—	256	Sh. Friendsh. Wh. Ann	30	28 30
1024	Arundell	2	—	256	South Molton	7	12 13
1024	Ashburton United Mines	9	—	1024	South Plain Wood	1 64	7 9 12
1024	Ballaun United Mines	9	—	300	South Speed	5	—
128	Balunou Consols	42	20	256	South Tolgus	16	135 140
905	Barristown	5	—	256	South Trelawny	25	5 8
3650	Bawden	1	—	3000	South Wales Mining Co.	1	—
6000	Bealbury	1	—	256	South Wheal Bassett	104	250
4000	Bedford	24	5 4	124	South Wh. Frances	1	—
1280	Birch Tor & Vitrifer	104	6 64	256	South Wh. Josiah	2	3 4
5000	Black Craig & Craigven	1	—	10000	Southern & Western, Irish	2	—
9000	Blancavon	50	12	280	Spearhead Moor	30	40
5000	Bilalund Consols	1	—	128	Spearhead Moor	10	60
1024	Bodmin Moor Consols	1	—	256	St. Aubyn and Grylls	2	—
5000	Bodmin Moor Consols	1	—	3	St. Ives Consols	—	—
60	Boson	4	10 12 13	128	St. Michael Peakville	5	104
100	Botallack	182	110	999	St. Minver Consols	1	—
130	Brewer	5	24	1000	Stray Park	43	22 23
10000	British Iron, Newgrange	12	5	9600	Tamar Consols	3	4 5
—	Ditto ditto, scrip	10	10	10240	Tavistock Consols	1	—
2400	Bryn-Arian	2	12 2	687	Tavy Consols	6	2 4 5
107	Budick Consols	52	10 11 12	6000	Tincroft	7	124 134
250	Butterdon	1	2 3	24	Tolcarne	8	164
1000	Callington	22	5	5000	Tregurra Consols	1	2 24
1000	Camborne Consols	7	5 1	256	Tregurden	21	7 8
10000	Cameron's Steam Coal	7	—	256	Trehane	11	25 30
256	Caradon Mines	22	10	5000	Treleigh Consols	6	3 34
256	Caradon United	24	5 8	2000	Trelyn Consols	—	—
1586	Caradon Vale	3	—	1600	Trevelian	10	100
1000	Carbarn	5	12 15	1000	Trevelian Lime Quarries	2	—
572	Caradon Wh. Hooper	5	4	128	Trevelian	10	100
1000	Carn Brea	15	115 120	120	Trevelian	10	100
1000	Carthow Consols	1	—	120	Trevilkey and Barrier	130	215 250
113	Charlestown	220	—	512	Trevelian Copper	21	23 3
500	Clawson	5	4	512	Trevilley (Lewannick)	1	—
128	Comfort	45	38 40	1000	Tyldwy	2	—
256	Condarrow	20	90 100	3000	United Mines	50	140 50 60
2560	Cook's Kitchen	14	6 64	256	Wellington Mines	25	30
1000	Crookings Valley Quarry	5	5 5 1	128	West Buller	10	550
1000	Copper Bottom	7	—	256	West Caradon	20	90 100
900	Court Grange	9	10	512	West Fowey Consols	40	12
212	Cradock Moor	23	5	1024	West Par Consols	5	—
128	Creeg Brawas	120	30	2500	West Polgoth	5	—
500	Culter Mine	12	—	—	Ditto Notes	3	4 1
1000	Cwm Erhu	4	34 4	512	West Providence	9	20 21
1000	Duron	2	7 7	200	West Seton	45	180
7100	Durwest	10	5	120	West Trevelian	1	—
502	Devon & Courtenay Con.	11	3 34	512	West Wheal Francis	11	9
1024	Devon Great Consols	1	245 250	256	West Wh. Friendship	9	8
1000	Durood	2	5	3845	West Wheal Jewel	12	23 3
182	Dolcoath	30	50	940	West Tolgus & Trelawny	12	56 6
2560	Drake Walls	5	23 3	500	West Wheal Towan	21	11 12
10000	Durham County Coal	45	9	1024	West Wheal Trevelian	7	10 11 12
1000	Dyffryn	10	5	1024	West Wheal Virgin	4	—
2500	East Birch Tor	3	—	124	Whidnall Mines	4	—
1024	East Buller	2	43 5	5200	Wicklow Copper	3	14
2048	East Crowndale	7	11	5000	Wicklow Copper	3	14
256	East Dolpholpin	10	13	107	Wheal Adams	130	150
4000	East Gwinn Lake Junction	1	—	1000	Wheal Agur	—	—
128	East Pool	45	5 72	256	Wheal Albert	10	28 29
9000	East Tamar Consols	11	12 14	128	Wheal Anderson	28	—
256	East Tolgus	1	—	128	Wheal Anna	7	504
128	East Trevelian	1	—	512	Wheal Anna Maria	7	—
91	East Wheal Crutty	125	95	120	Wheal Bal	10	22
128	East Wheal Rose	50	510	256	Wheal Benny	19	5
256	East Wheal Seton	24	24	1024	Wheal Bray	11	—
—	— East of Scotland Iron Co.	5	—	242	Wheal Calstock	9	10
1280	Eagor Llee	2	—	256	Wheal Carpenter	—	—
248	Exmoor Wh. Eliza	11	14 15	256	Wheal Courtney	20	23
96	Fewey Consols	40	48	183	Wheal Elizabeth	9	32
1024	Fredd Laidy Mines	14	34	256	Wheal Fortescue	15	—
256	Garras	41	23	100	Wheal Friendly	70	604
4000	Gen. Mining Co. for Irel.	14	4	764	Wheal Franco	27	8 10 16
2500	Georgina Consols (Tin)	2	16	4000	Wheal Golden	2	5 6
356	Gonnamine	44	16	1000	Wheal Grose	35	40
128	Gonnamine	4	2	100	Wheal Henry	—	—
256	Graham & St. Aubyn	2	—	256	Wheal Kinross	—	—
96	Great Consols	80	17	6000	Wheal Langford	1	—
512	Great Wheal Badden	—	—	—	Wheal Langmaid	—	—
512	Gr. Wh. Rough Tor Con.	24	20	1024	Wheal Lawrence	34	34
6000	Growtha Steel Company	5	—	112	Wheal Margaret	79	180
1026	Gustavus Mines	3	34	512	Wheal Mary Ann	5	42 43
1024	Hawknor	12	14	360	Wheal Oak	—	—
6000	Heigston Down Con.	3	4 4	3000	Wheal Penhal	—	—
1800	Henneock Silver Lead	21	91	210	Wheal Prospect	4	7
1024	Henneock Iron & Tin	21	91	120	Wheal Providence	1	23 3
10000	Holmbush	22	10	120	Wheal Reeth	—	—
1000	Holmbush	22	10	108	Wheal Seton	107	250
900	Kewick	10	3	1056	Wheal Sarah	5	6
1024	Kingstall and Bedford	34	4 4	512	Wheal Sophia	5	6
787	Kirkcudbrightshire	10	6 7	128	Wheal Squire (St. Erith)	30	35
4948	Lanherne Wh. Maria	10	6 7	128	Wheal St. Ann	30	35
252	Lanarth Consols	—	—	1100	Wheal Treacoll	64	7
256	Lelant Consols	47	164 183	256	Wheal Trelawny	74	92 94
160	Levant	—	175	256	Wh. Tremaine (St. Ervan)	9	24
1000	Lewis	17	94 10	1024	Wheal Trevelian	9	11 12
1000	Livynmales	9	10	267	Wheal Tryphena	40	694
3500	Lynval Iron	50	50	512	Wheal Ventr	24	34
6000	Marke Valley	10	5	128	Wheal Vincent	5	6
4000	Mendip Hills	3	—	128	Wheal Vlow (Perran)	11	14
128	Metha	34	—	184	Wheal Vvyan	—	—
20000	Mining Co. of Ireland	7	42				
1024	New East Crowndale	2	—				
1024	North Buller	14	24 4				
100	North Pool	45	450 475				
140	North Rosekar	52	160				
262	North Wh. Lelant	1	—				
512	North Wheal Var	—	—				
128	Par Consols	55	650				
1026	Pendarves Consols	2	55 6 7				
1000	Pendarves & St. Aubyn	4	5 6				
1248	Pennall Tin	1	—				
6201	Pennant & Craigven	24	23 3				
1000	Pennybank and Ergold	4	—				
1024	Penzance Consols	22	34 4				
5000	Peter Tavy & Mary Tavy	3	1				
512	Plymouth Wh. Yeoland	61	—				
112	Providence Mines	—	150				
2500	Rhosiddole & Bacheliddon	10	10				
10000	Rhymney Iron	30	12				
10000	Roche New	7	3				
5000	Roche Rock Tin	1	12				
2500	North Wheal Var	—	—				
2048	Runnford Coombe Tin	1	3 34				
9000	South Tamar	1	24 3				

FOREIGN MINES.

140	North Boulder	45	50	475	5000	Atten Mining Company	14	—	2 25
140	North Boulder	45	50	475	5000	Asturian Mining Co. . .	15	—	2 25
262	North Koskone	—	55	160	5000	Australian	4	—	2 25
262	North Wh. Lelsure ..	14	—	2	5000	Barosa Range	18	2	2 25
120	North Wheel Vor ..	—	—	2 2	10000	Brazilian Imperial ..	23	6	6 25
206	Par Consols	55 5	—	650	12000	Cobre Copper Co.	40	—	352
120	Pendaras Consols ..	2	55	6 7	10000	Copapo Mining Co. . .	14	4	4 25
100	Pendaras & St. Aubyn.	4	5	6	10000	General Mining Ass'n.	20	13	18 15
248	Pengelly Tin	1	—	1	5000	Godalinal	5	—	1
301	Pennant & Craigwen ..	23	—	2 5	5000	King	2	—	1
500	Pennybank and Engloide	—	—	—	5000	Kniffling Mining Ass. .	3	—	1
200	Penzance Consols ..	32	3	4 25	5000	Linares	3	—	3 25
100	Peter Tavy & Mary Tavy	—	—	1	5000	Ditto New	3	—	3 25
513	Plymouth Wh. Yeolad	6 1	—	6	5051	Mexican Company ..	59	—	—
112	Providance Mines ..	—	—	150	20000	Mexican & South Amer.	8	—	1 15
500	Rhosiddall & Bachelidon	10	—	10	5000	National Brazilian ..	30	—	3 25
100	Rhymney Iron	50	—	12	104000	N. Brit. Australasian .	1	—	102
100	Ditto New	7	—	3	7050	Royal Santiago	10	12	13 15
100	Roche Rock Tin	1	—	1 15	11000	St. John del Rey	15	15	18 15
500	Roche Mine	5	6	7					

NOTICES TO CORRESPONDENTS.

*• We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

TAFTY CONSOLS.—To correct an error from one of our correspondents, a few weeks since, we are informed that the cost of shares in Taftty Consols has been 5s. each; selling price no quotation, as there are no sellers. The mine is now in 687 shares only; the remainder of the 1024 having been resigned or forfeited for non-payment of calls, and are held as stock by the company, so that any one buying a 1024 share is actually purchasing a 687th share.

WHEAL PENHALE.—In last week's Journal, in reporting upon this mine, it was said—"the engine-shaft is now sunk from 5 to 6 fathoms below the 63 fathom level." &c. It should be below the "30 fathom level."

"A Tarnstok Correspondent" should write to the committee about the brass windrose. His communication respecting Wheal Anderton materials can only appear with his name attached.

"R. P." (Crediton).—A list of dividends paid in Cornwall and Devonshire mines in 1849 was published in the last Journal of the year. The amount paid by West Buller was 2560s., or 80s. per share.

"An Unfortunate."—The call of 10s. per share on the Northern Coal Mining Company is made payable on or before the 24th inst.; the order is peremptory.

"Tyro Chemicus" (Bedford-street).—When a balloon, or hollow sphere, made of gold-beaters' skin, or any animal membrane, or even of caoutchouc, is filled with carburetted hydrogen, and left floating in the air, a process, termed *ballooning*, immediately commences; and as it proceeds the vessel gradually swells, becomes heavier, sinks to the floor, and finally bursts. This is owing to the great tendency to diffusion existing in all the permanent elastic gases—namely, atmospheric air penetrating the pores of the membrane, mixing with the hydrogen, and a smaller portion of the hydrogen escapes and mixes with the atmosphere. A moistened bladder, two-thirds filled with coal gas, and suspended in carbonic acid gas, acts in a similar manner—it gradually swells and finally bursts. In this experiment sometimes as much as 40 per cent. of carbonic acid mixes with the coal gas. By thus experimenting on different gases, it is found that the same volume of ammonia gas obtains access to the air in 1s. as sulphuretted hydrogen in 2s.; cyanogen, 3s.; carbonic acid, 5s.; protoxide of nitrogen, 6s.; arsenuretted hydrogen, 27s.; olefiant gas, 2s.; hydrogen, 37s.; oxygen, 1s. 5s.; and of carbonic oxide, 2s. 4d.

"Enquirer."—The gases given off from decomposing human remains, consist of sulphuretted hydrogen, carburetted hydrogen, sundry phosphates, and nitrate of carbon—all most powerfully destructive to animal life. We cannot give any idea as to quantity, though we have no doubt a satisfactory solution may be found in Liebig's *Organic Chemistry*.

BELL-SHAPED INSULATORS.—"B." (Chiswick).—The question asked by our correspondent is one respecting which a great amount of misapprehension exists at the present moment. Earthenware was employed many years ago in Germany as an insulating support for the wire of the electric telegraph; and bell-shaped insulators, made in part of metal, and in part of varnished glass, were commonly used by Mr. Crookes in his early experiments at Broomfield. The combination, however, of the material (earthenware) with the bell shape was new, useful, and patentable. It is efficacious in the case of rain, but is no protective against the conducting deposits of dust and mist. We were informed, some time back, that the bell-shaped earthenware insulators were originally suggested by a gentleman in the employ of the company; and that the idea was subsequently adopted without acknowledgment, and incorporated as one of the prominent claims in the specification of a current patent. Be this as it may, the novelty lies only in the combination; and the patent in this respect is, therefore, extremely circumscribed. What is to prevent any one from using insulators of this form, made of well-varnished wood? They might even be made of tin-plate, or other cheap metal, if properly insulated by non-conducting material. We will speak upon the subject of "stoppers" hereafter. There has been too great a stress laid upon this point.

Mr. David Misher's paper on Mine Inspection shall appear in our next Journal.

"A Mine Agent" ("B. C." Calstock) observes that, from the discussion between "Matthew Mundle" and Mr. Bodkin, the public might conclude that one of Mr. J. B. Wilson's ropes, which had been in use 3 months and 5 days, has had to be withdrawn; the rope was composed of 52 wires, 40 of which had broken.

BRICKS.—Sir: Having seen a peculiar description of brick, more like a composition than manufactured from clay (it being very rough and coarse in its structure), and being informed it stands heat remarkably well, as also resisting acid, I write to you to inquire if you can give me any information as to how, and where such bricks are manufactured? I am informed a great many are used in the neighbourhood of Swansea by the copper-smelters, and are there known as the Dina brick, or some such name.—A CONSTANT READER: Leeds, June 5.

We have an interesting report on the "Times Life Assurance and Guarantee Company," which want of space compels us to postpone until next week.

*• It is particularly requested that all communications may be addressed—

TO THE EDITOR,

Mining Journal Office,

25, FLEET-STREET, LONDON.

And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, JUNE 8, 1850.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 25, Fleet-street, and can be obtained, before Twelve, of all newsagents, at the Royal Exchange, and other parts of London.

We have at length received the long-looked for report on the prevention of accidents in, and ventilation of, mines by Mr. J. KENYON BLACKWELL, and which, although evidently the production of a practical man, one who well understood his subject before he commenced his investigation, and which he has analysed and commented on in a masterly manner, has really brought to light no new features on the subject, but only confirms, in a strong degree, the necessity for the immediate formation of a general inspection to carry out some of the valuable suggestions made by the writer. Notwithstanding we have said no new features are brought out by this report, we do not deem it unimportant. The lucid manner in which the different systems of working are explained, the impartiality with which he attacks abuses, and stigmatises neglect and carelessness, and his suggestions for instituting different modes of working where he considers the present one defective or dangerous, render the report a complete essay on colliery operations, and which will prove both interesting and instructive to all acquainted with the subject. Mr. BLACKWELL has great satisfaction in stating, that while fulfilling his instructions, he met with general support on the part of the coal proprietors of the districts visited, expresses his thanks for their courtesy, and for the facilities which they afforded him during his survey. The examination has been completed into the present state of ventilation, and the general condition of the mines in some of the most important districts assigned to Mr. BLACKWELL. The total annual production of the collieries which were visited will exceed 6,000,000 tons, and it is proposed to continue the survey until the remaining districts have been examined in the same way. Mr. BLACKWELL states, that from his prior knowledge, he has now been able to review the systems of mining employed in the latter, and also the methods practised in other important coal-fields in this country, which were found highly necessary, in order to present a complete analysis on the subject. The questions to which Mr. BLACKWELL addressed himself more particularly, were—How far is the state of ventilation, and the condition of mines in other respects, calculated to insure the safety of the persons employed in them? What are the chief defects in the mode of conducting these operations, and what general improvements and precautions can be suggested in their management?

We now proceed to give some extracts from the body of the report itself, forming replies to the above queries:—

The systems or modes of working coal may be divided into two classes, which are usually called the *pillar and stail*, and the *long wall* systems. The pillar and stail method is that in which the operation commences by intersecting the seam of coal intended to be wrought by passages, or drifts, formed at convenient intervals, and at right angles to each other, pillars of coal being left standing between the intersections of these drifts for the support of the roof. The long wall method is that in which the whole of the coal seam is obtained at once, by working on the face of a bank, or wall, of solid coal, which is removed unintermittedly, in convenient lengths, in one direction, the roof of the seam being allowed to fall, or close gradually, in the other. The variations, or modifications, which occur in these two systems may be classified in the following manner:—The three first variations affect the order in which the workings proceed, the two latter the form of the works. The first variation is common to both these systems. It is found, when the coal is worked out in one operation, either wholly, or to so large an extent as may in the end be possible, excepting so much as may be required temporarily

for the support of the working ways, or roads, of the mine; this operation being commenced at or near the bottom of the shaft, and being continued onward from that point, leaving no coal behind. The second variation is also common to both systems, and occurs when the working ways, or roads, only are driven out first, to the extent, or outside, of the tract of coal proposed to be wrought before the working of the coal is commenced. A third variation, applicable only to the pillar and stail system, is that of a partial working of the coal in bands, bays, or stalls, as the ways, or roads, progress, the larger part of the seam being left in pillars (or, as it is usually termed, waste or broken), to be wrought out in turn. About one-third of the quantity ultimately realised is generally taken in this first operation, but this proportion is sometimes increased. A fourth modification, in which the pillar and stail and long wall systems are united, is effected by working the coal in banks of considerable but varying widths, pillars of coal being generally left between the separate banks, to secure the roads leading into them, and to divide the weight on the face of the bank. Other pillars are also left between the goaves formed by the working banks, and the main ways, or roads, of the mine, in order to protect, and support these roads. A fifth modification, connected with the pillar and stail system, is caused by the nature and thickness of the seam to which it is applied in South Staffordshire, especially by the necessity of excluding the goaves which are formed in working from the action of the air, by leaving ribs, or barriers, of coal surrounding the sides of work, or chambers, in which it is wrought. The comparative advantages, or disadvantages, of these different systems of coal mining can only be determined by the examination of the circumstances of each individual case. In general one or two are practised, to the exclusion of the others, and the various coal districts; their selection having been the result of experience with regard to the nature, thickness, and other peculiarities of the seams of coal, their roofs and floors, or asper and sub-incumbent strata, and other similar conditions.

The report then proceeds, at length, to describe the several systems of working pursued in Northumberland and Durham, in Lancashire, South Wales, Shropshire, Yorkshire, Derbyshire, and Staffordshire—all of which partake, more or less, of the descriptions in the above extract. On speaking of the objects to be proposed in the ventilation of mines, he says—

There are three principal objects which ought to be proposed in the ventilation of mines:—the introduction of a sufficient quantity of air; its proper distribution; and the security of the arrangements to maintain this distribution and circulation. In the first place, the quantity of air to be introduced should not merely that the mine is necessary to neutralise the deadly and noxious gases which are yielded under ordinary circumstances in the mine, but also to supply a sufficient volume to provide for the unusual emissions of them, which sometimes occur, and to dilute these to such an extent as to avoid danger; and at all times to afford a healthy atmosphere for the breathing of the workmen. In the second place, due regard must be given to the proper distribution of the air introduced, so that every part of the excavations of the mine may have its requisite circulation, and none be left stagnant for the accumulation of those being the deadly and noxious gases, and without the air coming in contact with the dangerous and noxious gases, to those parts where the men are engaged; and to the providing for its separate return or escape, or of that of any portion of it, carrying off with it these gases, as soon as it shall have become anywhere perceptibly loaded with them, without again entering the working districts, or coming in contact with the workmen or their lights. In the third place, the security and stability of the air-ways, their freedom from leakage, and strength to resist the shock of an explosion, will afford the degree of warning to the experienced eye, and suggest the propriety of obtaining the additional security afforded by the use of the Davy lamp. Attention is also drawn to the fact, that in pillar workings, or wherever goaves are in process of formation which yield fire-damp, and are in contact with the working air, the necessity is already recognised, in well-regulated collieries, of adhering to the exclusive use of the Davy lamp in those districts of the mine in which these circumstances exist. These facts certainly appear to direct our consideration to the practical security which long experience has proved to result from the careful use of this lamp, even under conditions of the most dangerous nature, and to the propriety of its general adoption. A further reference to the quantity of light afforded by the Davy lamp, I consider it to be sufficient for all but the thickest coal seams. Many collieries, both in the Newcastle and Lancashire coal-fields, are worked exclusively with this light, both in the whole coal and in the pillar workings. The whole of the pillar workings in the Newcastle district are now carried on exclusively with lamps. The only real difficulty to its general employment seems to be the occasional necessity for the use of powder in working coal. In those collieries, where the coal is worked in the pillar system, and the use of powder can be dispensed with, the Davy lamp ought to be adopted. With regard to the practical security which this lamp affords, the result of several years' experience in many extensive collieries in which it is exclusively used, does not present one case of accident from explosion; and its daily use, ever since its invention by the workmen (who visit, with it, the most explosive atmosphere), has never been attended by an accident. In some districts sufficient attention is not paid to the size of the cylinder of wire gauze which surrounds the lamp, nor to the proper fitness of the mesh of the gauze. When the diameter of the cylinder exceeds 1s. in, or a gauge below 2s. to the inch in fineness is used, the lamp becomes comparatively unsafe.

The comparative value of the ventilating furnace and steam jets is then considered; and the author is evidently favourable to the latter, when it can be applied with facility, although he considers sufficient data has not yet been received to warrant arriving at exact conclusions. The velocities of the air currents, relative area of shafts and airways, with the volume of currents, are fully treated; and the report then brings us to the consideration of the causes of explosions in mines, and means to be adopted for their prevention. Of the causes, he says—

The immediate sources of explosion in mines may be divided into four classes:—first, the permanent yield of inflammable gas from the whole coal, as exposed in the roads and workings, which is, in general, of a constant amount; secondly, a sudden and large discharge from the whole coal, or from the roof or floor of the seam. This is usually termed *fire-damp*, and is the result of the escape of the inflammable gas from the seam, as exposed in the workings, if it has not been previously drained by exploring and intersecting drifts; from the roof, or floor of the seam in the goaves, especially when these are first formed; from the coal, or roof or floor in the drifts, on approaching or striking faults, or the soft coal contiguous to faults, or when the pressure of inflammable gas existing in the seam, or in thin seams in the floor or roof, produces sudden rupture and liberation. Thirdly, stagnant fire-damp in the goaves of the mine, either on account of there being no escape for its fire-damp, or of the being properly directed, or not sufficiently strong to carry the product of these goaves, on approaching their edges, into the return air-currents of the mine, without their mingling with the working air. Fourthly, isolated roads, or workings, in which fire-damp is liable to accumulate, if secluded from the general circulation of the mine.

The remedy for the first of these is increased ventilation; for the second, increased care in exploring drifts, great caution in working, and the use of the Davy lamp in all cases. For the third, the restriction, as much as possible, of the size of the goaves, and the use of the Davy, with return air-currents, which shall not mix with the air of the mine; and the fourth admits of such easy removal, that it is only necessary to allude to it. Although Mr. BLACKWELL recommends the Davy lamp, he cautions against blind confidence. He says—

The examination of the various circumstances to the occurrence of which explosions can be traced, has shown that discharges of inflammable gas occasionally take place in mines which cannot be provided for by ventilation only; but, in such cases, the condition of the seam, and the amount of pressure under which the exudation of fire-damp occurs, will afford a degree of warning to the experienced eye, and suggest the propriety of obtaining the additional security afforded by the use of the Davy lamp. Attention is also drawn to the fact, that in pillar workings, or wherever goaves are in process of formation which yield fire-damp, and are in contact with the working air, the necessity is already recognised, in well-regulated collieries, of adhering to the exclusive use of the Davy lamp in those districts of the mine in which these circumstances exist. These facts certainly appear to direct our consideration to the practical security which long experience has proved to result from the careful use of this lamp, even under conditions of the most dangerous nature, and to the propriety of its general adoption. A further reference to the quantity of light afforded by the Davy lamp, I consider it to be sufficient for all but the thickest coal seams. Many collieries, both in the Newcastle and Lancashire coal-fields, are worked exclusively with this light, both in the whole coal and in the pillar workings. The whole of the pillar workings in the Newcastle district are now carried on exclusively with lamps. The only real difficulty to its general employment seems to be the occasional necessity for the use of powder in working coal. In those collieries, where the coal is worked in the pillar system, and the use of powder can be dispensed with, the Davy lamp ought to be adopted. With regard to the practical security which this lamp affords, the result of several years' experience in many extensive collieries in which it is exclusively used, does not present one case of accident from explosion; and its daily use, ever since its invention by the workmen (who visit, with it, the most explosive atmosphere), has never been attended by an accident. In some districts sufficient attention is not paid to the size of the cylinder of wire gauze which surrounds the lamp, nor to the proper fitness of the mesh of the gauze. When the diameter of the cylinder exceeds 1s. in, or a gauge below 2s. to the inch in fineness is used, the lamp becomes comparatively unsafe.

On the necessity of making the roads the men traverse the main air-currents, the report says—

The loss of life from after-damp is generally found to occur, to the largest extent, in the roads which the men have to traverse on their way to the shafts by which the mine is entered. This fact points out the necessity of making these roads the main intake air-currents, and of securing them from the risk of air being driven from the contact of fire-damp, and also from their being disturbed by the shock of an explosion, until they reach those points in the mine where they enter the workings in which the men are engaged. It is only in case of the permanence of the arrangements made to establish this division, and to conduct columns of pure air to the extreme districts at all times, that the men can escape after an explosion, or that help can be speedily conveyed to the survivors, who may be suffering from it, but unable to effect their own escape. The system of using the main roads for return airways, in which the currents, after they have received all the explosive gases yielded in the mine, are brought or kept in contact with lights (and thus both propagating an explosion and cutting off every avenue of escape, since these roads are, under such circumstances, to be swept by the fire, or speedily filled with after-damp), ought not to be adopted except in small collieries, in which inflammable gas is never seen. The foregoing considerations also point out the strong necessity for two independent shafts in all coal mines; and of providing for the accessibility of the downcast shaft to all the men engaged. Subsequently to an explosion, it is generally impossible to descend or ascend a shaft, or to pass through a large opening, on the ground of its being filled with the after-damp. If there be only a single shaft, and the division of the downcast and upcast currents be of a slight nature, such as by a brattice partition or pipes fixed in the shaft, the damage which is produced by an explosion generally prevents either escape, or the rendering of assistance to the survivors. The number of bratticed shafts is fortunately diminishing. Where they are still continued to be used, it ought not to be permitted that any other light than the Davy lamp should be taken below the surface. The employment of a furnace for ventilation is objectionable in such cases.

After a review of the general principles which ought to be observed in all colliery operations, the report concludes with the following general precautions and remedies to lessen, or remove, danger in mines:—

The Davy lamp only should be used in pillar workings, where goaves, containing inflammable gas, are in process of formation. It is desirable to use this lamp in exploring drifts, and wherever the discharge of fire-damp visibly occurs under pressure, as in newly-opened seams. Although the use of powder in mines, under this condition, would lessen the security to be derived from an exclusive use of the Davy lamp, yet if careful officers only were employed to fire shots, it would still afford comparative safety. It should also be used exclusively in mines yielding fire-damp, in which the ventilation is dependent on the security of a brattice shaft. A well-considered system of rules, and general directions for the guidance of the workmen, is highly important to the security of a colliery. These should include regulations for descending; for the examination of the workings previous to their entry by the men, and during the working hours; and also rules for the management of the Davy lamp. With a perfect system and efficient ventilation, the appearance of inflammable gas in the air of a mine, except in the exploring drifts, may generally be prevented. In conclusion, it must be stated, as the result of the investigation here made, that although many of the mines in this country are conducted with all the precautions which experience has suggested, and with the expenditure of capital afford, yet that there are numerous others in which the sys-

tem and arrangements are defective; and further, that a great part of the serious loss of life which does occur would be prevented, if due skill and proper means were employed to remove those defects in existing conditions, which can be clearly recognised. In addition to the loss of life from accidents of a violent nature, the neglect which too frequently occurs (especially in districts and mines in which little or no inflammable gas is found), to provide a sufficient supply of pure air, is productive of much disease among the mining population. This evil admits of easy remedy, which it will probably receive when the attention of mining proprietors is called to it. The returns which can be obtained with respect to the number, nature, and causes of accidents in mines, I have found to be in general so exceedingly vague and defective, that any conclusions based on them would be liable to error. With very few exceptions, no accounts at all are kept at mining establishments on the subject. If accurate registers were to be found at such works, of the accidents of every class which occur, along with that information which might be rendered of their causes, nature, and results, a source of very important knowledge and correct conclusions would be afforded. If the amount of ventilation in each mine—that is to say, the specific quantity of air in circulation—were measured periodically, and recorded in connection with the number of workmen employed, another valuable source of information, bearing on the actual condition of mines, would be provided. Although the actual occurrence of explosions may often be traced to the ignorance or carelessness of the subordinate agents, or of the workmen, their primary causes, even in these cases, must be generally assigned to the want of skill and care in the management of the mine, which has produced the conditions that render this cause so dangerous. It must be allowed also that, in many districts, those who have been intrusted with the management of mines have often been scarcely removed in intelligence, or acquirements, from the rank of common workmen, their knowledge being frequently so limited, that the improvements made, and the principles observed in one district, are quite unknown in others. But the most important means of safety for the mining population in their hazardous employments would be found, if the intelligence of this class generally were elevated, by education. At present the miner is rarely able to judge of the dangers by which he is surrounded, or, consequently, to defend himself by ceasing to work in those mines in which they unnecessarily exist. There appears to be no obstacle in the nature of the work itself, or the condition of the younger part of the mining population, to prevent the provisions for education, contained in the Factory Act, from being applied to this class; by requiring, as a condition of employment, the production of school certificates, to show a certain daily school attendance on the part of all youths employed in mines, until they shall have attained a specified age.

Here, then, we find there are many collieries in existence in which numerous accidents occur entirely through neglect, or want of energy in adopting and carrying out those means of safety which are found highly successful in other collieries, where a higher feeling of humanity, and an anxiety for the safety of human life, prompts to the adoption of preventive measure. Notwithstanding that superior arrangements and regulations, accompanied by a good ventilation, are to be found in many collieries, there are also numerous others in which the supply of air is defective, and its condition dangerous. In some, we are informed, the upcast shaft is much below the dimensions in sectional area which it ought to be; in others from the upcast column being returned to surface by small pipes even in deep mines; it is not only insufficient in its volume, but insecure against the slightest shock.

In some cases, especially when two or more seams are worked, the downcast shaft is not accessible to all the men engaged; thus rendering the escape more doubtful in case of accident. Another defect is the small size of the air-ways to which the air is confined throughout the works. The ventilation is thus often very weak, and the air heavy and unwholesome, even in the absence of fire-damp. Narrow work is often driven too far without openings. Pipes are often used instead of an intake or return drift, to convey the air through long distances. Drifts, in which fire-damp can collect, are left without circulation. Heavy or foul return air currents are allowed to pass to the upcast shaft by wagon roads, where naked lights are used. The workmen are sometimes compelled to find lamps themselves where danger exists; and as the use of this lamp is not absolutely enforced in these cases, its employment, when necessary, is often neglected. The Davy is sometimes used as a substitute for neglected ventilation. Dangerous shafts and tackle are used to descend and ascend; and in some places there is no proper system of rules enforced, particularly for the examination of the works in the morning, before the men commence.

Now, these are just the points which it would be the duty of inspectors to see properly carried out; and if, after this highly efficient report, the Government still hesitate to bring forward a measure for the colliers' relief, the public will naturally believe that they have not the courage to propose a bill, but succumb to a few wealthy coalowners.

It is now some months since we directed attention to the mineral resources of Ireland, but we angr that, ere long, it will be our pleasing duty to record the extent of operations in the vast mineral tracts with which that country abounds—already sufficiently proved to warrant a large outlay of capital in prosecuting the several discoveries made, and which require only application to render productive. The subject of mining in Ireland now engages the minds of many, and attention once directed to the sister isle, we cannot doubt but that operations, on an extensive scale, will be carried on, attended with those beneficial results which, in so many instances, accompany a spirited outlay, with the application of talent and skill, and a due observance of economy. It will then be our aim to collate such information as may conduce to that grand object—the employment of the industrial peasantry; and, in our future Numbers, render those details which relate to the mineral products and the geological features of Ireland, with the results which have heretofore attended mining enterprise. The working of the new measure for effecting the sale of encumbered estates promises well, as, in many instances, we doubt not, with fresh blood infused into the veins of Ireland, its mineral veins will not be neglected, but that, on the contrary, they will be effectively worked, yielding, as they are calculated to do, a vast increase to the national wealth. It is to be borne in mind that every ton of copper or lead ore obtained from the bowels of the earth is an addition to our wealth, and is, in fact, so much additional capital; while the amount expended in its extraction affords employment and the means of subsistence to thousands who might otherwise be starving, but who would willingly labour if the means were afforded them, or the opportunity presented itself. Let us, for instance, take Cornwall as an illustration of the great advantages attendant upon the working of her mines, looking at the question not simply as to the profits such operations may yield to the adventurer, and to the merchant, but the labour it affords to the industrious working classes, who, without such means, would be even in a more abject state than the peasantry of Ireland, were they to confine themselves to the immediate localities in which they are placed. The mining districts are generally situated in mountainous tracts, or barren soil, where ought to be to be obtained from the surface, but the internal riches of which are productive of the means of labour—the employment of the miner, and the production, in many instances, of riches to the capitalist as a return for his investment, which confers so many benefits, both directly and indirectly. The working of a mine, in the first instance, causes a demand for labour, employs the engineer, the artisan, and the common miner, with those various adjuncts which extensive workings ever command and require. Its produce is an increase to our national wealth, and whether we take iron, lead, copper, tin, or other metallic products, we find that an increase in produce is naturally attended by a consequent demand for labour, and hence must be considered equally as important as that of our agricultural pursuits, or any other mode of employment of labour and capital. The multifarious advantages attendant on the working of our coal mines, whether considered as affecting our manufactures or our comforts, require no comment; while we may refer to these pursuits, as well as to mineral lodes, as contributing more than any other branch of industry to the welfare of the nation.

The steam-engine, whether applied to one purpose or the other in our manufactures, our modes of transit, or in whatever way, is in itself one of the strongest evidences which can be afforded of the value to be attached to our mineral resources. If such, then, be so manifest, it is only natural to assume, judging from the past and present, as applied to England, that the like application of capital, united with energy and economy, would be productive of good and benefit, the extent of which it would be difficult to contemplate as affects Ireland. The employment of the peasantry, and the habits of industry imbibed—the fresh tone which it would give to a comparatively new field for enterprise—would engender the best feelings; and, while it rendered the employed, in a measure, independent, from the earnings derived by their labour, would relieve the Union Houses, and, consequently, the poor rates—would contribute to the peace and happiness of the nation, and afford productive and remunerative returns on the capital invested. That such must result will be admitted by all who reflect on the advantages attendant on our mining operations closer home—unlike railway speculations, which for a time afford employment to the many; but the road, once constructed, leaves them to seek other means of support, difficult to obtain in the shape of labour in the sister country; while mining pursuits, if attended with success, form a continuous demand for labour; and hence the means of support afforded to the numerous families dependent.

Let it, then, be our province, aided, as we hope to be by the kindness

and philanthropy, not to advert to that genuine feeling we believe to be inherent in the hearts and minds of Irishmen, to assist in the good cause, by contributing their meed of information, so as to enable the English capitalist to avail himself of the advantages held out; while, for ourselves, we can only repeat that, our object being once defined, we shall not lose sight of it; but trust that the little services we may render will be appreciated, and meet that encouragement and success which must be the warmest wish of all those who love mankind, and who are most naturally disposed to look to home and the sister isle—the benefits conferred on which are co-equal with our own interests. We pause for the present, relying on our correspondents to lend their aid in enabling us to carry out our object with that success which one and all must desire—*Cæd mille failthe.*

A return has just been made, by order of the House of Commons, of the drawbacks of duty granted upon timber used in copper, tin, lead, and other mines, in England, Scotland, and Ireland, respectively in each year, from the period of their first allowance to that at which they were finally discontinued, specifying in each case the full rate of duty payable upon such timber, the proportion, or percentage, of such duty granted in the nature of drawback, and the amount of such drawback in each year, also giving the dates and titles of the Acts of Parliament under which the said drawbacks were first allowed, and finally discontinued, and of any other Acts of intermediate dates, specifically applicable thereto. From these returns, we find that for the first three years the records were destroyed; that under the Act, 53d Geo. III., c. 105, they were—1814, 3624*l.*; 1815, 8708*l.*; 1816, 12,860*l.*; 1817, 12,467*l.*; and 1818, 16,093*l.* In 1821 and 1822, under Acts of 1st and 2d Geo. IV., cap. 37, they amounted respectively to 31,538*l.* and 38,251*l.*; and in 1823 and 1824 respectively to 31,538*l.* and 38,251*l.* In 1825, 1826, and 1827, under 6th Geo. IV., cap. 113, they were respectively 50,881*l.*, 28,013*l.*, and 26,811*l.* Under 9th Geo. IV., cap. 76, the drawbacks amounted to as follows:—

1828	437,331	1834	246,170
1829	40,186	1835	37,824
1830	35,885	1836	83,853
1831	37,814	1837	64,080
1832	40,464	1838	58,810
1833	42,256	1839	56,049

And for the three last years of the drawbacks, under 3d and 4th Vic., cap. 12, and Treasury order, they amounted—in 1840, 51,564*l.*; 1841, 62,536*l.*; 1842, 52,490*l.* By 5th and 6th Vic., cap. 47, the drawbacks were repealed on all timber and deals—the duty whereon was paid after 10th October, 1842. The duty on balk timber from foreign countries is now 15*s.* per load of 50 cubic feet—less than half its amount when drawback was allowed; and on that from British possessions the duty is only 1*s.* per load. The arrears allowed, after the 10th October, 1842, when the drawback ceased, amounted to 42,058*l.*; and the total drawback of the 10 years ended 1842, amounted to 597,603*l.*, or an average of 59,760*l.* per annum.

Our contemporary, the *Times*, in yesterday's impression, in noticing the report of the directors of the NATIONAL BRITISH MINING ASSOCIATION, after showing the great increase in the gold returns which had taken place between 1845 and 1849, says that "the other points of working in Cocoes, Terra Cahida, and Cuiba, it is stated, exhibit favourable indications; but, although the proceeds of gold are calculated to have reached 7425*l.*, the undertaking is still worked at a loss." Now, this is not the fact; for although such observation might have applied to the workings in the three first quarters of last year, it does not at present; for, since about Oct. last, the adventure has been working at very considerable profit. On reference to the report, which will be found in another column, it will be seen that, while the three first quarters of 1849 produced 53, 62, and 94 mks. respectively, the fourth quarter's produce was 165 mks., and the returns have considerably more than paid the costs since. From the immense mass of stone laid open in Cuiba, from the fact that the returns of this would produce a profit of 100 per cent. on the cost, and the agents at Rio having had instructions to supply funds to any amount on which profits can be realised, we hope shortly to see these mines assume a high position, and pay good and regular dividends. The prospects in all the workings are now of an interesting character.

We think there can be but one opinion as to the relative position in which the iron manufacturer and the operative are placed to each other, or of the duties to be performed, and concessions which should be mutually exchanged to secure the welfare of each. When prices of iron range high, and the master manufacturer is reaping large returns, and realising immense profits on the capital employed, it is but just and right that the collier and ironstone getter should, to some extent, participate in their employer's prosperity, by being in the receipt of full and fair wages. But, on a reverse of fortune, when prices fall lower and lower, until the capitalist, no longer realising a profit, is probably paying for labour out of his capital, it then becomes as much a duty of the operative to submit to such equivalent reduction in his wages as will, at least, lessen the current loss upon the works. Yet it is under precisely these latter circumstances that the men still hold out on strike in the Ayrshire and Lanarkshire collieries. The relation between employer and employed must be, to a great extent, governed by the relative proportions of supply and demand, which proportions naturally bear upon the cost of the raw material, the price of the finished iron in the market, and the equitable share to the collier, as wages for the labour bestowed. The rate of wages which the colliers are now on strike for was conceded to them in February last, on the occasion of a sudden advance in iron from 43*s.* to 50*s.* per ton, previous to which advance the rate was about 2*s.* 6d. per day, but the work confined to a much smaller quantity than might actually have been performed, being not above seven hitches put out, while 10 or 11 was formerly considered a fair day's work. This advance was also made on the condition that, when iron should fall to 45*s.* per ton, the previous rate of wages should be reverted to. Iron did fall in March and April last as low as 43*s.*, and the ironmasters, therefore, required the men to fulfil their part of the agreement, by going back to the old wages. This they refused; the masters were firm, and the turn out was the consequence.

It would be well for the misguided men who have already had proof of the good faith which regulates the actions of their employers to consider well their position: 20 years since, the iron manufactured in Scotland was only about 90,000 tons; at the present moment it is upwards of 600,000 tons, or sevenfold. Notwithstanding the fact that nearly one-half of the furnaces in Scotland are blown out, the stocks on hand are equal to the entire make for the past half-year. This large stock has accumulated from speculations in pig-iron, and it is only from such speculations that the ironmasters have been enabled to increase their stocks to an extent far above the capabilities of their own capital; and nothing can tend to greater irregularities in the trade, and, consequently, want of confidence and injuries to the interests of both masters and men than these strikes, the one in question not having even the plea of injustice on the part of the masters to support it. In Monmouthshire the coal proprietors have given notice of their intention to reduce the price for cutting coal; and if the statement put forth by the colliers' committee be correct, certainly without sufficient justification; and should a strike take place in consequence, we should have cause to sympathise with the men; while in the case above referred to we think justice is on the side of the masters.

We have inserted in another column a statement from a correspondent of an extraordinary outrage committed in the neighbourhood of Holywell, Flintshire, by a gang of discontented miners, who are endeavouring to compel the whole of the mine agents in the district to reduce the hours of labour from eight to six hours. We have received communications from other correspondents, adventurers in some of the mines, and it is much to be regretted that fears are entertained that the mines of Flintshire are degenerating from that prosperous condition, and the miners from that peaceable conduct, which, for so many years, has characterised both. A spirit of discontent prevails in consequence of new adventurers discouraging the attempt at a reduction of the hours of labour, which has gradually dwindled down from twelve hours to eight, and at many

of the mines only six hours; thus leaving six hours for other occupations. A mob of probably 1000 miners were collected from the different mines by a few leading riotous men, and proceeded to a mine near Holywell, and, to the disgust and abhorrence of all who have been made acquainted with the fact, ill used, and drove from his home, an unoffending agent, as stated in the notice referred to, who was only doing his duty by carrying out his employers' instructions—that of keeping the men at work eight hours per day, in conformity with the working rules of nearly all the mines in the kingdom—their object being to overawe the whole mines of the district into subjection, and to compel the adventurers to introduce a system of six instead of eight hours' working. Anxious as we ever are for the amelioration of the condition of the miner, we cannot help expressing, on this occasion, our dissatisfaction and regret at this attempt, even had it been made without the commission of any outrage on the liberty of the subject. Eight hours per day is by no means a hard task for a miner; and, tributers, it is well known, in Cornwall, labour eleven and twelve hours a day, and would work longer if the agents would permit them. No mine would pay sufficient if the men worked only six hours per day; and, by these rash proceedings, the misguided men are opposing their own true interests; their efforts must, in the end, prove futile; and fix a brand of degradation on their general character.

From parochial statistics we find that the average life of the miners in the neighbourhood of Holywell is of less duration than in other mining districts; and this circumstance, coupled with the fact of their working only six hours per day, would appear most paradoxical, were we not also apprised of another fact, which at once defines the motives for the present attempt to lessen the hours of labour. One man often works at two mines in the same day—six hours as a daily miner at one, and six hours in another, on an annual bargain. The really working time, however, underground does not exceed four hours and a half at each, and the chief cause of the injury to their constitutions is that, being paid by the yard, and having so little time to get anything like a good day's work done, they over exert themselves, and, when in a state of perspiration, throw themselves for rest on the wet rocks, which they have just broken down. It cannot be allowed that the peace of a whole district is to be disturbed in the way we have recorded; and, if further disturbance takes place, it is to be hoped the magistracy will be on the alert, and have sufficient force at hand to quell their turbulent dispositions, restore peace to the district, and secure the just rights of capital and industry.

We are well pleased to find, from a paragraph inserted in another column, that CAMERON'S COALBROOK STEAM-COAL COMPANY promises success at an early day—the line of railway being in the course of formation, and which will, doubtless, be completed within four months from the present time; while the works are, we are given to understand, progressing satisfactorily. The directors may be said to well deserve support, were it only on account of their indefatigable labours and perseverance in carrying out a project, which now, in some measure denuded of its excrescences, will, doubtless, yield a fair return on the capital invested, although it must be admitted that in the early stages of the operations of the company certain difficulties had to be overcome, among which was the large number of shares reserved by the lessor, free from any call, and also the payment of a considerable sum for the property. This, however, has since undergone a modification, which, we trust, will be found in the end not only advantageous to the lessees, but to the lessor, and that with "a long pull, a strong pull, and a pull altogether," we shall find the adventure not only weathers the storm, but yields to the shareholders those returns which their confidence and perseverance so well merit.

THE IRON DUTIES OF UNITED GERMANY.

We have received the following communication from a valued correspondent, well acquainted with this, to the British Iron Trade, highly important subject:—"You are, no doubt, aware that the tariff of the Zollverein is now undergoing revision, and that the several states will send plenipotentiaries to Cassel on the 1st of July next, to determine upon the charges. The manufacturers are urging upon the Government an advance, even upon the present enormous duties on metals, and the agriculturalists and the trading community are (although, I fear, far less active) pressing for the necessity of a more liberal tariff. The principal point in dispute appears the iron duties, and all the weight and influence this country could give should be thrown in the scale in favour of that party and those classes who urge upon their Government the reduction of duty on an article of such universal utility as iron. It may not be known to you that the defunct Frankfurt Parliament appointed a committee to investigate and report suggestions for a new tariff, applicable for 'United Germany'; and the report of this committee (issued only for private circulation) I have read, and I take the liberty to send you a translation of that portion treating upon the iron duties, as it may be interesting to see that a very strong party in Germany is favourable to the reduction of duty on raw materials that press upon manufacturing industry. The present depressed state of the iron trade makes the subject of the duties levied in foreign states of peculiar interest; and if, upon perusal of the enclosed, you find it of such a character as would interest your readers, I shall be happy to furnish you with such further information and translations as you may wish to receive."—We regret that want of space prevents our inserting the translation in our present Journal, but which shall appear in our next.

THE AMERICAN IMPORT DUTY ON BRITISH IRON.—The New York correspondent of the *Times* says—"It will be remembered that a communication was lately addressed by her Britannic Majesty's Minister at Washington to the Secretary of State, expressing a hope that no augmentation was contemplated of the present import duty on British iron. This remonstrance was forwarded to Congress, and an attempt was made, a few days since, to refer it (as such questions usually are) to the Committee on Manufactures. An amendment to this motion was, however, carried, which is important, as it places it in the hands of the Committee of Ways and Means, thus indicating, with tolerable certainty, a report unfavourable to any additional protection of domestic ironmasters, while the national finances are in so flourishing a condition."

THE SULPHUR TRADE OF SICILY.—We noticed, in our last Number, that the King of Naples had authorised the burning of sulphur in Sicily throughout the year (this, we presume, means for the production of sulphuric acid, and not the destruction of the sulphur); the consequence is, that the quantity obtained, during the past six months, is far short of the demand, or the usual supply, and, consequently, high prices have been obtained. The whole stocks are in the hands of a few wealthy merchants, who have contracted to supply Russia; and several large cargoes have lately been shipped for Odessa.

SPANISH STEEL.—A large quantity of the finest description of Toledo steel has arrived at Liverpool from Cadiz, consigned to an extensive firm. This is the second or third consignment to that port during the year, and is rather important, as, under the old Spanish tariff, it was prohibited.

MINING IN NORWAY.—The copper mines of Sateirdal, near Christiansand, which have produced large quantities of *bunt copper* and yellow pyrites, first discovered in 1658, worked by the Danes, subsequently abandoned, and resumed by several parties, with various successes, are about to be again worked. Several influential parties connected with mines in England and Norway having interested themselves in the speculation.

FOREIGN RAILROADS.—The Norwegian Government have, we understand, dispatched Amtmand Monichen, the governor of Aggershus, in conjunction with the *concessionaire* of the projected line in that country, which was inspected in 1846 by R. Stephenson, Esq., M.P., and surveyed in the following year by Mr. John England, to endeavour to form a company for its working. A minimum rate of profit is guaranteed by the State, and the undertaking may be considered a *bona fide* affair; whether the profits will be so large as anticipated in so thinly populated a country remains, however, to be seen. The proposed capital, when first projected, was 500,000*l.* sterling. In the event of non-success in the present case, the capital will be, probably, raised in Christiania, either by subscription, or loan on Government security.

MODELS OF BRIDGES.—Our respected correspondent, Mr. Thomas Motley, has at length completed the models promised in a communication in the *Mining Journal* some weeks since, which are now fitted up in a room at our offices, and we assure our readers are well worthy an inspection; while we shall feel pleasure in showing them to any parties who feel interested in the important science of bridge erection. We have also a splendid design, 14 ft. long, for the proposed gallery the whole length over Waterloo-bridge. The models of the bridges have already given great satisfaction to many engineers and scientific parties who have already inspected them.

COATING IRON WITH GLASS.

From the great tendency to oxidation, and consequent decay which iron in every shape, of rolled or wrought manufacture, has inherent in its nature, it has ever been the practice to cover it with an artificial coat, to preserve it from the destructive effects of the elements, and within comparatively a few years past many plans have been adopted for this purpose. Various paints and pigments, zinc, enamel for culinary utensils, and numerous other appliances, have been laid before the public, each perhaps good in its way, but neither of them applicable as a universal coating for iron under all circumstances, or which will be found sufficiently economical in numerous cases. At the *soirée* of the President of the Institution of Civil Engineers, last week, some specimens of iron manufacture were exhibited, coated with glass, from the Smethwick Iron works, of Messrs. Selby and Johns, near Birmingham, and which would appear to be the very desideratum so long sought for. There were three ornamental dinner plates, three pieces of iron tube, a frying-pan, and a piece of corrugated iron roof, all covered with clear transparent glass, and which were viewed with much admiration by the visitors. We have since availed ourselves of the opportunity of inspecting a much greater variety of this unique material, at the London establishment of the patentees, in Upper Thames-street, which is undoubtedly deserving of public attention, as likely to prove of much importance, and open a still wider field for the iron manufacture, to more ornamental and costly appliances, than has hitherto been the case. In the process of coating plates, corrugated or plain roofing, tiles, tubing of all kinds and dimensions, frying-pans, griddles, saucepans, kettles, cauldrons, or boilers in lieu of coppers, and a host of other implements, domestic, agricultural, and manufacturing, the article is first thoroughly cleansed in an acid solution, to free it from every particle of grease, similar to the preparation for tinning, zining, &c.; it is then covered with a glutinous preparation, over which is laid a coat of glass, ground to a fine powder. The article is then introduced into a furnace of peculiar construction, and sufficient temperature, in which the glass is fused, and the intermediate glutinous matter being evaporated, the glass fills the external pores of the metal, and becomes firmly united to it; and, in answer to our enquiries, we were informed that as the manipulation became facilitated by practice, it was probable the cost of a glass coated iron material, of these common kinds, would be but a mere nominal trifle more than the plain articles themselves. With respect to the ornamental articles, they, of course, involve some little more complexity, but bid fair to open a field for design and novelty of much interest. We were shown some ornamental dinner plates, of the same material, each of which was four ounces lighter than an earthenware plate of the best construction, size for size. The foliage and designs are in relief, and are executed by a kind of stencilling; one colour being put on it is transferred to the kiln and fixed; when cold, another colour is added, again fixed, and withdrawn; and so on until the design is complete. From the inspection afforded us, we have no doubt whatever that, as by practice the colours become improved, and full command over their application obtained, this really elegant invention will be applied to numerous purposes at present probably scarcely thought of. To wash-stands and toilet furniture it would be most applicable, as also for sideboards, chérons, door-plates and panels, fire-grate ornaments, and to numerous other purposes in decorative building and architecture. For plates for the names of streets it would be almost indestructible, and might be brought into use with much effect for shop front architecture. We were shown, among other specimens, a small door panel, with a bunch of foliage in the centre, surrounded with an arabesque border to represent gold, which had a very pleasing effect. The invention is another step onward in the progress of art and science, and is of much interest.

GAS FROM THE DECOMPOSITION OF WATER.

The great problem of the economical decomposition of water, for the purposes of artificial illumination, appears to be much nearer solution in America than Mr. White, or any of his competitors in this country, have been able to achieve, and by a far more cleanly, delicate, and scientific process than by furnaces, retorts, bits of iron, pitch, tar, oils, &c. It is a well-known principle—in fact, forms almost an everyday experiment of the lecture table—that a current of electricity, whether galvanic or frictional, on passing through water, has the power of decomposing it, giving out oxygen at one pole, and hydrogen at the other; and we learn that a Mr. Henry M. Payne, of Worcester (U.S.), has ingeniously taken advantage of this principle in the production of hydro-carbon gas, for the purposes of both lighting and heating dwellings. We are not exactly let into the secret of the means employed for generating the current of electricity; but as it states that a weight of 67 lbs., falling 9 ft. per hour, will produce 1000 ft. of gas, we presume it to be frictional electricity, particularly as it appears that the apparatus for lighting his own dwelling is contained in a box, 18 in. square and 8 in. deep. From this box, two flat copper wires are conducted into the decomposing jar, containing the water, forming the two poles of the battery; and, as the pure hydrogen escapes, it passes into a carbonising vessel. The process of carbonising we are not made acquainted with; but it is stated to be so far from costly, that carbonising gas for three burners for a week amounted only to one cent. It appears that, on the 23d April last, Mr. Payne had his residence brilliantly illuminated, for the purpose of exhibiting his complete success to his friends and many gentlemen connected with gas companies, scientific bodies, &c. It is stated that, although only one small burner was employed in each room, yet the light was dazzling, perfectly white, and so pure, that the most delicate shades of blue and green could be distinguished at several feet distance. The gas was supplied through a pipe, $\frac{1}{4}$ in. diameter. For heating purposes, the company were shown a simple machine, consisting of two discs of iron, raised a few inches from the floor, and between which two or three small jets of pure hydrogen were burning; and, in a few minutes after lighting, an equable and genial heat pervaded the apartment. There is nothing in this description but what is perfectly consistent with scientific truths; and we cannot doubt that this simple system of lighting will soon get into general adoption, provided sufficient electricity can be produced on a large scale with equivalent economy. Mr. Payne can regulate to a nicety the quantity of electricity passing through the decomposing jar; one cubic foot of water will produce 2100 ft. of gas. The apparatus can be applied to all existing gas establishments; and all gas fittings and burners at present in use may be still retained.

IRON, HARDWARE, AND METAL TRADES' PENSION SOCIETY.—We beg to call the attention of our readers to an advertisement which appears in another column from this society. We are happy to find that their funds are in such a position, as to have enabled them to elect three additional pensioners at their general meeting last month. Another election, we observe, is announced for November next; the number to be elected will depend upon the future liberality and exertions of the friends of this charity. In looking through the list of subscribers, we notice the *absence* of some of our large ironmasters, who, we think, ought to stand in the foremost ranks of such a society as this. Mr. G. B. Thorneycroft, at their late anniversary festival, pledged himself that he would stand by the society heart and hand, and that he would take especial care to have this matter brought before the class he has just alluded to. Mr. Thorneycroft, we all know, will perform whatever he may promise, and we look forward with much interest to the result of his benevolent exertions.

CAMERON'S COALBROOK STEAM-COAL AND SWANSEA AND LOUGHOR RAILWAY COMPANY.—The directors have just issued a circular to the shareholders, in which they state that, since the last meeting, they have steadily and determinedly followed out the course they then proposed, as to the formation of a railway to the port and docks of Llanelly. That these matters have at length been brought to a satisfactory conclusion, the contract for making the line has been signed, the works are now progressing, and that the railway will, by the terms of the contract, be handed over to the company complete in less than four months from Monday last; they, therefore, after indefatigable labour, ask for increased confidence from the shareholders, and call upon all in arrears to pay their calls immediately. Unless they do, they will feel it their duty, in justice to those who liberally come forward with means, to adopt legal measures to enforce payment.

MINERALS FROM NATAL.—We have, within the past three months, several times alluded to the rapidly-advancing colony of Natal, on the eastern coast of Africa, and to the measures being adopted by the Natal Company to forward and facilitate emigration thereto. In addition to its salubrious climate, and prolific soil, we have said that minerals had also been found—indications having been seen of iron, copper, coal, and plumbago. It is with much pleasure we inform our readers that we can bear testimony to the two latter descriptions, as far as assurances can be relied on. Mr. Christopherson, of Pietermaritzburg, has forwarded us a specimen of anthracite coal from Natal, equal in appearance to the best of our South Wales deposits, and a piece of plumbago, also from the colony—the latter not being of a very good colour for pencils, but would most probably answer perfectly well for crucibles and fire-bricks, if plentiful. At all events, these symptoms are highly encouraging.

HISTORY AND MANUFACTURE OF GUNPOWDER.—No. VIII.

BY JOHN JOSEPH LAKE, OF THE ORDNANCE DEPARTMENT.

Chemists have been aware for many years that nitric acid produces a great change in the nature of vegetable tissues. Dr. Ryan mentions having seen a receipt book nearly a century old, in which was the following recipe:—"Tow or cotton should never be employed to stop bottles containing materials giving off nitrous acid fumes, as sometimes an explosion is the result." In the year, 1833, Braconnot gave an account of a new substance, which he named xyloidine, from the Greek word for wood, because he procured it by the action of concentrated nitric acid upon sawdust, linen, starch, and other similar substances. It may be readily prepared by boiling starch a few seconds in concentrated nitric acid. The xyloidine is precipitated by pouring this mixture into cold water, and can then be collected and dried. From the *Compte Rendus* of the Paris Academy of Sciences, we find that this substance engaged the attention of Pelouze. He observed that it is very combustible, that it fuses at 356° Fahr., burning with great rapidity, and leaving scarcely any residue. This property led him to an experiment, which he thought would be capable of application, especially with artillery. He soaked paper in nitric acid, of the specific gravity of 1.5, for two or three minutes; then withdrawing and washing it, he procured a kind of parchment that is impermeable to moisture, and very combustible. It appears to have been his idea, that this could have been used in war in place of gunpowder. Dumas seems to have been the next to investigate this curious substance, and mentions the application of pasteboard and paper prepared with nitric acid to the manufacture of fireworks. He proposed the name "nitramidine" for this substance.—*Traité de Chimie appliquée aux Arts*, 1843, p. 90.

The next step in the investigation and application of these substances obtained great publicity, and excited much interest. In the year, 1846, Prof. Grove brought to the notice of the public, in behalf of its discoverer, Prof. Schönbein, at the meeting of the British Association, at Southampton, the preparation known as gun-cotton. The manner of preparing it was not at that time stated, but a patent was taken out for it on the 8th of October, 1846, and enrolled 8th April, 1847. It was entitled—"Patent for improvements in the manufacture of explosive compounds," and the following is given as Prof. Schönbein's method of making the cotton. A mixture is prepared, consisting of sulphuric acid, 1.85 specific gravity, 3 parts; nitric acid, 1.45 to 1.50 specific gravity, 1 part; and allowed to cool down to between 50° and 60° Fahr. Rough cotton is saturated with this mixture, to facilitate which process it should be stirred with a glass rod. The excess of the liquid is then to be drawn off, and the cotton pressed lightly with some earthen substance to remove the principal part of the acids. The cotton is afterwards covered over, and allowed to remain one hour. It is then pressed, and thoroughly washed in running water, to remove all free acid until it does not, in the least degree, affect litmus paper. It is then to be partially dried by pressure, and to insure its perfect freedom from acid it is to be washed in a diluted solution of carbonate of potash, made by dissolving one ounce of carbonate of potash in a gallon of water. The excess of alkaline solution is next to be forced out by a press, which renders the cotton nearly dry. The substance is then to be washed in a solution, consisting of one ounce pure nitrate of potash in one gallon of water, and then again pressed; it is finally dried in a stove or room, heated by steam or hot water, to a temperature from 150° to 170° Fahrenheit. The nitrate is stated in the specification not to be absolutely necessary.

M. Schönbein began the experiments that resulted in the production of gun-cotton on sugar, which he reduced to a fine powder, and made into a thin paste, with a mixture of one part nitric acid, of specific gravity 1.5, and two parts sulphuric acid, of specific gravity 1.85, at 36° Fahrenheit. This, on being well stirred, did not give out any gaseous exhalation. After being well mixed and stirred, the viscous mass was separated from the acid, well washed with boiling water, to render the separation perfect, and afterwards deprived of as much water as possible at a low temperature. The substance thus produced was compact and brittle. It could be moulded like jalap resin when warmed, and assumed a silken lustre. It was semi-fluid at 212°, gave off red vapours at a higher temperature, and, when heated still further, deflagrated violently, without perceptible residue. Pursuing his experiments on other organic substances, he made his principal discovery of the cotton in 1845; and though he was partially anticipated by Braconnot and Pelouze, it is to his researches that any practical good has been arrived at. The explosive compound prepared by M. Schönbein, has been named pyroxyline; and, although it is very like xyloidine, yet it is not that substance, as the following characteristics of each sufficiently show:—

PYROXYLINE.	XYLOIDINE.
Insoluble in water; nearly so in alcohol, and mixture of ether, and 1-10th alcohol.	Insoluble in water; slightly soluble in ether; not so in alcohol, and still more so with a small quantity of alcohol.
Acetic ether destroys its fibre, and dissolves it rapidly.	Dissolves in acetic ether.
Dissolved by strong sulphuric acid, only when aided by heat.	Dissolved by sulphuric acid, without heat.
Not acted upon by fuming nitric acid.	Soluble in fuming nitric acid.
Dissolves in a hot solution of potash.	Dissolves in a boiling solution of potash.

—Mr. J. H. Gladstone, in *Philosophical Magazine* (Supplement), Dec. 1847.

Cotton converted into pyroxyline increases greatly in weight. In one instance, 38.38 grains became 66.84 grains; and in another case, 59.3 grains gave an increase of 43.7 grains. This gun-cotton resembles the physical properties of the original cotton very closely, and explodes at about 370°, without producing smoke or leaving any residue. The explosive point of gunpowder being 600° Fahr., if a little be put on a sheet of writing paper, and a small piece of gun-cotton laid lightly on it, and the whole held about a foot above a lamp or candle, the cotton will explode in a short time, but the powder will remain, the combustion of the cotton being too rapid to allow of the powder being raised to the proper temperature to ignite.

The conflicting statements of different authors as to the amount of this increase, led Mr. Gladstone to try the effect of difference of time of the immersion, but found no variation; but he met with varied results by using different portions of the acid mixture employed. With one measure of nitric acid, and two sulphuric acid, he observed increases of 56.84, 59.93, and 70.6 per cent. in three several experiments. In trying to make out the cause of these discrepancies, he immersed the cotton in large quantities of acid, and the result was an increase of 73.1 per cent.

He next employed a quantity of acid that was merely sufficient to wet the cotton thoroughly. The increase in this case was only 51.74 per cent., and there were evidences of the existence of organic matter in the acid residuum, which was not the case when there was a larger increase of weight. Mr. Gladstone considers that the cause of the small increase of weight, when but little of the acid mixture is present, is owing to a partial destruction of the cotton by sulphuric acid through the deficiency of nitric acid, which shows the extreme caution that is necessary to prepare this compound in a proper way. M. Schönbein's method of employing 3 parts sulphuric is superior to the above, the increases being 75.20 per cent. in one instance, and 75.47 in another; for it is easier to obtain sulphuric acid than highly concentrated nitric acid. In preparing gun-cotton, it is necessary that the nitric acid should be of sufficient strength, otherwise xyloidine will be formed. Of specific gravity 1.5, with 1, 2, or 3 parts of sulphuric acid, will do. But the last proportion of sulphuric acid is best, for the reasons just given: 3 parts of Schönbein's gun-cotton produce the same effects as 8 parts Government gunpowder.

Pyroxyline can be exploded by electricity in the same way as gunpowder, but easier, because the temperature at which it explodes is only about 400° Fahr.—that is, 200° less than gunpowder. Some specimens of gun-cotton give off during explosion large quantities of nitric acid vapours, probably owing to free acid not being properly washed out of the compound. Dr. Ryan proposes to remove this, by rinsing the cotton before drying it in water containing a small portion of ammonia. The fulminating power of the cotton is increased by using nitric acid of good strength. Thus the acid of specific gravity 1.45 produces a weaker explosive power than of specific gravity 1.50, the fibre being acted upon less by a strong than a weak acid. The cotton becomes a gelatinous mass, with acid of specific gravity 1.37. By employing a weak solution of chloride of potash, pyroxyline acquires the property of exploding by percussion. Pyroxyline may be distinguished from other cotton by its hardness, and a decrepitating sound after being pressed. When properly prepared, the cotton undergoes no change in colour, but by improper manipulation it sometimes becomes yellow.

The electric condition of pyroxyline is also very peculiar. On passing

* Different authorities vary as to the explosive point of gun-cotton between 300° and 400°. The discrepancies, probably, arise from the several specimens being prepared by different individuals.

a portion between the finger and thumb, it will be found to adhere to them with considerable tenacity, by which it is distinguished from common cotton wool. A strip of paper prepared in the same way as cotton, develops electricity by rubbing in the same way, and is attracted and repulsed by other bodies, according to their electrical condition.

Portsmouth, June 4.

ERRATA.—In last week's paper, lines 34, 36, and 40, for "nitrogen" read "oxygen."

MINING IN SPAIN.—No. II.

Amongst the mines which give to these two "barancos" a foremost place in the district, may be enumerated La Regla the minerals of which are equal to those of the leading mines: San Geronimo, La Virgen del Pilar, La Suerte del Hombre, Los Cuatro Mudos, La Virgen de los Remedios, La Traicion, La Chacona, and La Angelina; all situated on a lode equal to the best mines of Almagra, and ranging from 3 to 6 feet in breadth.

In the baranco of La Torre, the only mine opened, is that of Catalina, —the features of which correspond with those of the two preceding. The baranco of La Sima, in which the ancients have also left traces of their works, contains, amongst others, the mine of Los Angeles, which produces a mineral of great value, but hitherto in small quantity; as the works are not fully developed, and the lode does not yet exceed 2 ft. in breadth.

The barancos of Pinalbos de Tierra, and of El Mar, contain good mines, and peculiarly well situated for working. In the latter especially, is the Mine of San Francisco, which, at no great depth, has disclosed a rich lode, composed of iron, barytes, and steel-grained galena, with a breadth of from 3 to 7½ ft. The ancients worked here also; but only to the depth of some 30 fms. In the baranco of Pinalbo de Tierra, where, after the mines of Jaroso and La Raja, the works have been carried on with most vigour, are to be distinguished those of San Antonio, Los Anchurrones, El Criadero, and Nuestra Señora de Gracia. The first of these, directed by an English mining engineer, produces a very rich steel-grained galena, mixed with iron and barytes, in a vein of 3 ft. in breadth. The present workings are connected with a lode which has led to the discovery of considerable workings, of Roman origin, as appears from the utensils and lamps that have been found in the galleries. Los Anchurrones, or Nuestra Señora de Piedad, yields a steady produce of the like mineral as the former, though still richer in silver and lead. El Criadero is a flourishing undertaking, with a lode of the breadth of 4 ft. Nuestra Señora de Gracia, presents the like indications as the foregoing, but has not hitherto given such great returns. In the remaining barancos, or gorges, in which the works are more or less advanced, the minerals are almost identical with those already enumerated. In some, the lead predominates, in others, the proportion of silver is more abundant. This, with variations in the breadth of the lodes, is the only difference between the several deposits—their mineralogical character being merely modified, by accidental circumstances.

An estimate of the selling value of the minerals, can only be arrived at, by means of a classification, similar to that which the miner observes on the spot; thus, it is customary, to divide the mineral, into three qualities, known under the distinctions of "recio," or first quality; "primeras," or second quality; and "ultimos," or third quality. The first quality contains, according to the gorge which produces it, from 84 to 132 ozs. of silver per ton of 22 quintals, and from 40 to 50 per cent. of lead; the second quality, from 44 to 55 ozs. of silver per ton, and from 22 to 30 per cent. of lead; and the third quality, from 14 ozs. to 33 ozs. of silver per ton, and from 12 to 16 per cent. of lead. The price of first quality, varies from 18l. 10s. to 31l. 18s. per ton, according to the proportions of silver, resulting from assay; the second quality, from 4l. 11s., 5l. 10s., and 6l. 8s. to 11l. per ton; and third quality, from about 1l. to 3l. and 4l. per ton. The first and second qualities constitute about two-fifths of the ores produced; and the third class, comprehends the other three-fifths. An ore, called Los Vacaderos, may be said to form a fourth quality, but so inferior, as to be of small value. It may here be observed, that even the poorest portion of the lodes in Almagra, containing little or no lead, have always in them a certain quantity of silver, associated with the oxide of iron, which prevails throughout. The whole mineral district is argentiferous; this is its essential characteristic. Although the annual amount of mineral, extracted from the principal mines, is pretty uniform, yet, at shorter intervals, a considerable fluctuation is observed in their produce, resulting, on the one hand, from the inequality of the lode; and, on the other, from accidental differences, in the facility of extraction. Thus the variations in the weekly returns, are often very great, giving, during some weeks, a very ordinary galena, and then yielding ores of the greatest value; nor is this capricious yield peculiar to Jaroso; but pervades many of the adjoining "barancos." The average produce, however, up to date, confirms the basis already established, both as to quality, and quantity; so that, taking, at a venture, three periods, namely: Oct., 1847, June, 1848, and the average yield of the most unfavourable months, reduced to a single figure, the following will be the result:—

Date.	1st Class Ore.	2d Class Ore.	3d Class Ore.
October, 1847.....	Tons 75	Tons 81	Tons 322
June, 1848.....	12	254	145
Average of most unfavourable months.....	9	36	200

These three phases in the ores of Jaroso, manifest the variability of its yield, the fluctuations in its quality, and, at the same time, the accuracy, to a certain degree, of the calculation, by which two-fifths of the general produce, are assigned to the first and second-class ores, and the remaining three-fifths, to the third.

In order to ascertain the not annual returns of these mines, and establish a balance between receipts and expenses, it will be necessary to follow one of them in its operations during the mining year of 300 days—say, that of Observacion, as being an average one, and neither the best, nor worst in Jaroso. Thus, from the 1st of Jan. to the 31st of Dec., 1847, the Observacion yielded 86,029 quintals of mineral, which, valued at 32 reals the quintal, represents the sum of 2,730,730l.; expenses for the same period, as appears by the books of the owners, 57531l.; which, deducted from 2,730,730l., leaves a balance in favour of the mine of 2,397,730l. It is to be observed, however, that this balance represents only 10 months' work, as the filtrations of water into the deepest shafts, paralysed the works during the remaining two months of that year.

Such was in 1847, and such is still, more or less, the general state of the works, in the principal lode of Almagra. It is probable that the steam-engine, now about to be applied to unwearied the deep levels, will materially increase their future returns; and this without a proportionate increase of expense; as with the steam-engine, other improvements must naturally suggest themselves, tending to simplify some of the present operations, and place them on a still more economical footing. Should such be the case, no part of the world will present an example of equal riches, produced so cheap, and with such facilities.

Among the mineral hills, next in repute to Almagra, are those of Mazarron and Lomo de Baz. Mazarron is situated midway between Aguilas and Cartagena, at a distance of five leagues from each, forming the centre of one of the many undulations of the great bay, which embraces the two extremes of Cartagena and Almeria. It is of volcanic origin, and presents two distinct classes of ore; one, argentiferous galena, mixed with sulphate of zinc, containing some 45 per cent. of lead, and from 1½ to 2 ozs. of silver per cent.; the other, a carbonate and sulphate of lead, having for its base, siliceous and magnesia, and containing 4 ozs. of silver per cent. Mazarron was worked by the Romans, who have left traces of considerable operations, both in mining and smelting. It is a very interesting locality, containing, moreover, several other mineral substances, of commercial value.

Lomo de Baz, at a distance of three leagues both from Aguilas and from Mazarron, forms a group of hills, the central part of which, called Cuesta de Goy, contains the works most advanced. The country is transition, and the mineral, argentiferous galena, in which the lead prevails, but very pure and easy to smelt. The leading mines in this district are those of El Trobador, Los Labradores, Las Cibeles, and Santa Olalla, and their produce ranges from 28 to 45 per cent. of lead, and from 1½ to 3 ozs. of silver per cent. Nothing but capital and skill are wanting, in these localities of Mazarron and Lomo de Baz, to render them the centre of very flourishing enterprises.

One of the immediate effects of the discovery of the mines of Almagra, was the establishment of smelting-works, which were forthwith erected in various parts of the adjoining coast, but more especially in the vicinity of Aguilas. At first, the number of these was very considerable, but they have since diminished, until they are now, on a level with the supply. At the outset, inexperience led to indispensable, though costly, mistakes. Nothing was known regarding the construction of furnaces, the proportions of fuel, appropriate fluxes, the management of the furnaces, nor o

the mode of separating the lead and silver. In short, the first rudiments of the art of smelting had to be learnt; until it was slowly brought, by dear-bought experience, to the point it has now attained. The first idea was to seek the aid of foreign smelters; but these, after many attempts, were too partially successful, to give satisfaction. It was then that the Spaniards, left to their own resources, grappled stoutly with their difficulties, studying the characters of the minerals, and seeking the fluxes most appropriate to each. They laboured hard, ere they could obtain a precipitate from their furnaces, free from alloy, and regular in its course, at the least possible cost. They became assayers and refiners, until, by constancy, and that patient perseverance which distinguishes the Spanish character, they have not only attained their end, but have reached a degree of perfection, that entitles Aguilas, at this day, to be considered a practical school of metallurgy, unsurpassed by any other, for the simplicity, economy, and efficiency of its system. Amongst the successive smelters of this school, may be mentioned Don Nicolas Toledano, Don Pascual Ayuso, Don Pedro Jacinto Gris, Don Maria Torre y Cela, and Don Antonio Garcia Moreno, all of whom, in the order here cited, have contributed to its success; and it is, at the present day, highly interesting to observe rude villagers, executing the most delicate smelting operations, under the guidance of their self-taught masters; who have, moreover, materially contributed to their country's prosperity, by means of establishments that do them honour, as models of skill and ingenuity.

The principal smelting-works in the vicinity of Aguilas and of Almagra are those of La Virgen del Pilar, La San José, La Concepcion, and La Carmelita; the two first in Aguilas, the third halfway between that town and the centre of mining operations in Almagra, and the fourth at Villaricos, on the confines of the Almagra mineral district.

La Virgen del Pilar is under the personal direction of Don Pascual Ayuso—which is to say, that it forms a *tout ensemble* of regularity, order, and watchful organisation. Senor Ayuso takes the lead, amongst the practical metallurgists of this coast. His knowledge and experience are freely communicated to all; inasmuch that he is the councillor and protector of other establishments which, in moments of difficulty, have occasion to appeal to his liberality. More than one enterprise owes to him its recovery, after ruinous mistakes, and many, that state of prosperity in which they now exist. This establishment consists of six smelting-furnaces, and two cupels for refining. It produces, on an average, monthly, from 2 to 2½ tons of pure lead, and 8000 ozs. of silver.

[To be continued in next week's Mining Journal.]

Original Correspondence.

THORNEYCROFT'S IMPROVEMENTS IN IRON FOR RAILWAY PURPOSES.

SIR,—As I never did write or publish an anonymous letter in my life, I do not think I am likely to begin now, for the purpose of defending a principle which I know to be based so firmly on the rock of truth, that I defy all the anonymous writers who may come forward to disturb it. The facts are these—I have made a rail which, in the wearing part, is of an homogeneous substance, as much so as if it were made of cast-iron, or cast-steel, and is, therefore, perfectly free from lamina. If lamination is the great evil so much complained of, then to get rid of it altogether must be a great improvement. To give the most convincing proof of the superiority of this rail, I got permission from Mr. Brunel to have them tried in the most severe place upon the Great Western line. They have now been down nearly three years, and are little worse than when laid down. No rails have ever stood so long in the same situation, although the best rails they could purchase have been tried in the same place; therefore, the comparison of the "Paid Railway Official," alias "Railway Man," does not bear upon the point. His remark, "that the report of the engineer-in-chief would be a thousand times better than Mr. Bowman's," cannot be questioned, and I can assure him I would by no means undervalue such a report, but quite the contrary; but as that gentleman has several other make of rails laid down for trial besides mine, I should be guilty of great presumption if I were to ask him to report upon my rails, until he has had a fair opportunity of ascertaining the relative merits of each make now under trial. When he has fully satisfied himself upon this point, I have no doubt he will give his opinion freely and candidly, as I believe his only object is to ascertain which is the best rail, and which it will be the interest of the railway companies to use. I would now observe, that it may not always follow that a good fair price will procure a good fair rail; yet it certainly will be the case where honest and honourable men are dealt with; and bad as our reputation may be in this respect, there are to be found many men in our profession who would scorn to sell one quality and deliver another; but if there was not one honest man left among us, a test may and can be applied, which would prevent any deception being practised in the manufacture of rails. But it does follow that, if a price is paid which is less than a good quality of rail can be made for, a bad quality will be supplied, and all fair too; for, if parties will have low-priced rails, they must be satisfied when they receive full value for their money.

However the "Paid Railway Official" may be disposed to cavil with what I have said about the antilaminating rails, I beg to assure him that I have not said one word that exceeds the proper bounds of truth; therefore my statements do not come under the appellation of puffing; and I would say the same of Mr. Bowman's report. If the "Paid Railway Official" would but honour me with a visit to the Shrubbery Iron-Works, I will undertake to demonstrate to him the truth of what I have said, and to send him away a perfect convert to the principles I have laid down. I have had no difficulty in doing this to several of the most eminent engineers of the day, who have lately paid me a visit; or should the "Paid Railway Official" consider a visit to the Shrubbery too much trouble, if he will fix a time and place, within a reasonable distance (say, not further from this than Bristol), either myself or Mr. Bowman, or both of us, will meet him, and give him the proofs he needs, without trouble to himself. I perceive that the "Paid Railway Official" has referred to Mr. Doekny for certain information. There is no man's opinion deserving of more respect than his, for I find he has given the subject more attention than any other engineer I have met with; and I am happy to say that gentleman has been more than once to our works to examine the principle upon which these rails are made, and also the process of manufacture; and he is now, I believe, as firmly convinced as I am of their superiority over all others, in proof of which he has ordered them for his own line; and we are now making them for him.

I have frequently made certain statements respecting the quality and durability of these antilaminating rails; and I have also engaged Mr. Bowman, one of the best practical engineers I can find, whose integrity is unimpeachable, to watch the progress of the wear of these rails upon the several lines of railway where they are laid, and to report exactly what he finds to be the fact, and nothing more; and, so far as he has gone, I am quite willing to stake my reputation, or subject myself to any reasonable sacrifice, in a pecuniary point of view, in proof of the truth of both what he has stated, as well as myself; indeed, any departure from truth would defeat my object—hence, I shall be always ready to give proofs of all I have said, or may say; and these confirmed by the various experiments I am making on iron for railway purposes; and as I am spending some thousands of my own money in these experiments, I think I am fairly entitled to the assistance of all railway officials, and also of their employers. All the railway companies to whom we have sent rails for trial have given us every attention except one, who, after keeping the rails more than a year, wrote to say that they would not lay them down at all unless they received them for nothing. We promptly complied with these terms (cheap enough), when we received another letter, saying that they would not lay them down at all. Perhaps they will be able to explain this treatment, as an opportunity will be afforded them to do so, and that publicly, before long.—G. B. THORNEYCROFT: Wolverhampton, June 5.

ON THE PURIFICATION OF GAS.

SIR,—Unacquainted with the English language, and subject to an incorrect translation of my letters, is a sufficient reason for my declining a lengthened correspondence, you will be good enough to insert this, my last letter. Neither Mr. Laming, nor his friend, have stated the truth in your last Journal. I have vainly searched in his vague specification and patent of 1847. I can positively declare that it does not, in the slightest degree, refer to, or speak of, "sulphate of lime." He knows as well as I do that I do not use, in the manufacture of my purifying powder, any kind of material for which he has been previously patented; therefore, I beg to confirm all I said in my last letter. The result of my lawsuits with M. Mallet is, that I caused to be annulled all his brevets for the purifica-

tion of gas. I now leave you to judge how far Mr. Laming is to be believed, and whether, or not, I am the inventor of my own process, which is adopted in the principal gas-works of Paris, notwithstanding the said Mr. Laming's assertions about "the other side of the Channel." The letter, in your last Number, from "Veritas," contains no more truth than that of his friend. All I can say in his favour is, that he justifies remarkably well the proverb, which says, "You must not judge of a man by his name."—DE CAVAILLON: Paris, June 5.

[Any further communications, in reference to this subject, can only appear as advertisements.]

ELECTRO-MAGNETISM AS A MOTIVE-POWER.

SIR.—Having long taken great interest in the solution of the highly-important problem of the application of electro-magnetism as a motive-power, it was, with much pleasure, I heard Mr. Hunt state his views thereon at the Society of Arts—a very good paper on which you gave in the columns of the *Mining Journal* of the 25th May last. From the philosophical researches of Mr. Hunt, I believe he is correct in his statistical returns of the powers of electro-magnetism, and, as compared with coal and steam, as to its great inferiority in power, and excess in expense; but, although it may be tolerably well ascertained that the power of a battery in proportion to the loss of zinc is one hundred times more costly than the steam-engine, I trust the publication of these results of Mr. Hunt's investigations will not dishearten any of those lovers of science who may be prosecuting their researches in this highly interesting field. It is true that, from all we at present know of the best means of generating magnetism, the odds of producing an economic engine are against us; but it should also be remembered, that considerable improvements have already been made, and we must hope for more. A few years ago a circular motion only could be obtained from this power, and was converted into rectilinear by mechanism, and which, to be of any value, could not otherwise be obtained, from the very short distance at which the magnetic force acts. In Mr. Hirth's rectilinear engine he has obtained a direct stroke of 17 inches by the application of hollow magnets, and I hope yet to see some unexpected results from the induced currents of magnetism caused by the intermittent motion of the magnets; and, as Mr. Hirth has turned his attention to this point, I hope we shall shortly hear that still further advances have been made in the development of a power pervading all Nature in unimaginable quantity, and which is, doubtless, yet destined to become a mighty agent, when converted, by the ingenuity of man, to his own requirements.—S. A. B.: Crosby-square, June 4.

GOLD MINES OF THE ISTHMUS OF DARIEN—CANALISATION OF THE ISTHMUS, &c.

SIR.—I shall be extremely happy to find that Dr. Cullen's researches and speculations are based on sound and unequivocal data, and worthy of public support. I feel a great interest for the country, and am at all times ready to assist in promoting every legitimate speculation, be it in mining, roads, canals, or colonization, connected with New Granada; and as I am officially consulted by the capitalists and the emigrants in matters of that kind, I trust Dr. Cullen will excuse my observations. In your last Number Dr. Cullen, in reply to my letter respecting his having been examining the rivers and auriferous rocks in the Gulf of San Miguel, states that he "has not done any such foolish thing;" and yet he informs us in the very same letter that his "researches were in the territory of Darien, at the sources of the River Tuyra," which is situated in the interior of the recesses of the Gulf of San Miguel. Those who are acquainted with this part of the isthmus are well aware that I did not mean the mere mouth of the gulf, and the "Punto de Garachini," but inland also.

If I understand the doctor's communication rightly, he means that he has been to the Gulf of San Miguel, ascended the river Tuyra to Yavisa, then proceeded to search the various "quebradas" in the neighbourhood, and the Indians pointed out to him what he calls "the quartz rock mines of Darien, where the gold exists in the rocks, and where regular miners are required." Now, I beg to inform the doctor that, unless he has discovered something much more encouraging than the auriferous quartz veins in the rivers of the Darien, it would be as well, and probably as profitable and safer to Irishmen, to work the quartz veins of Ballinvalley, in the County of Wicklow. It is very evident, from the mineralogical description and nature of the deposits given, that the doctor is no practical miner, and, therefore, liable to have been led away, like many others before him, by interested persons. I do not mean to say but that there are important deposits of auriferous debris in the rivers of the Darien, within the Gulf of San Miguel, and possibly some auriferous pyritous lodes; but Dr. Cullen must be more explanatory on such matters.

The "cura" of Yavisa might have related an anecdote to Dr. Cullen respecting certain persons who came to the Darien in search of gold washings, mines, &c., in the "los rios de Chuchunque, Puigana, Cana," &c. Not being well provided with animal food, and having an unfortunate carnivorous propensity, the poor monkeys suffered under their hands for upwards of a week, and they returned in a miserable plight, with only a little gold dust obtained from the native washers, and a few specimens of porphyries, impregnated with yellow iron pyrites. Gold of a high standard may be obtained from the washings of all the rivers intersecting the auriferous rocks on the south coast; but a deposit, or a gold mine, must be more practically and less ambiguously described than heretofore, to render such worthy of an European company's notice. My men (20 in number) were, on one occasion, short of provisions, not far from the sources of the Chuchunque, in the interior of the Isthmus of the Darien, where I was surveying; I could not obtain meat from the Indians for love or money.

On reference to my official reports to the Government, which were published in the *Bogota Gazette*, also in your *Journal* in April, May, and June, 1848, and in the *Transactions of the Institution of Civil Engineers*, and discussed at their meetings, it will be seen that my investigations were not confined to the territory of Panama, and petty gold washings, but embraced the whole isthmus, and embodied every authentic data connected with this interesting neck of land. The map alluded to by Dr. Cullen must be a copy of the one accompanying my first report of the country between Panama and Portobello, and not my large geological map of the entire isthmus.

Dr. Cullen must excuse me referring to the articles in such papers as the *El Panameno* and *Panama Echo*, as my opinion on them is the same as it was on the articles of Baron Thierry, in 1836; and the articles in the *El Dia*, on the "grande deposito de oro in los rios del Golfo de San Miguel," in 1845 and 1846, and other "cuentas par los extranjeros." Although novel nomenclature, such as *placer*, is not recognised south of California, yet the doctor will observe that I have not misconceived the boundaries of his researches.

I was about a month surveying in Portobello, and I did not suffer from illness, therefore I cannot say that I have found it more unhealthy than other parts of the coast. Indeed, I found many places on the south coast of the isthmus much more unhealthy than Portobello. The French party did not get sick at Portobello, but at Chagres, and the deaths occurred in the neighbourhood of Panama; and I am somewhat surprised in finding Dr. Cullen not cognizant of this circumstance, more especially after being at Panama, and discussing on the gold speculation of the Darien. Dr. Cullen will find, in perusing my reports (see *Mining Journal*, April and May, 1848), that I give the isthmus its due, not only as regards climate, but disabuse it of many other qualities which are vulgarly attributed to it. I recommend Dr. Cullen to refer to the attempts and the cause of failures of colonization near some of the sources of the Atrato, at San Juan, Sepulzora, and other places I could mention, before he embarks with his men. New Granada is one of the finest countries in the world, possessing all varieties of climate, and numerous natural productions; yet those who know the country know the great difficulties attendant in taking a few scores of Europeans into the interior of the country, where they are well taken care of; how much more where they are left to themselves in the wilds of the forests? I know the country well for many years, and have crossed the great branches of the Andes many times, and, therefore, my observations are founded on actual experience, and not from gleanings derived from a hurried visit.

In conclusion, I beg to repeat that it does not follow, because Dr. Cullen has examined the Rio Savana to the Fuerte del Principe, about 30 miles above its mouth (which many others have done before, and crossed to the Caribbean coast), and ascended to the top of a tree on the summit of a mountain in the Rio Lara, that this place should be considered as "incomparably more eligible for intermarine communication than either the Lake of Nicaragua, the River Chagres, or the Atrato." It might be so as regards the latter; but the distance, the heights, and the cuttings, are not proved yet as favourable as those of Chagres and the Bayano. EVAN HOPKINS.

Austinfriars, June 6.

GOLD MINES OF THE DARIEN.

SIR.—My attention has been drawn to a communication in your interesting *Journal* of the 18th of May last, from Dr. Cullen, who I suppose has just returned from the Darien. I should feel much obliged if that gentleman could give us some account of the party sent from here in the early part of 1847, to work the gold washings of the Darien. You doubtless remember that, in 1846, owing to the glowing representations made of the great abundance of gold in the Rio Cana and other streams within the Gulf of San Miguel, bordering the Santa Maria, by a Mr. Helert, who styled himself an engineer, and also his reports on the quicksilver mines alleged to have existed at Portobello, and other rich deposits in the Isthmus of Panama, with various official records to establish the fact, a company was formed at Paris, with a capital of 50,000 fr. A vessel and the party, machinery, &c., were dispatched, and our expectations, as you may well suppose, were very high. In a few months afterwards we received the following letter from our agent at Panama—"We regret to inform you that the results of the examination in the rivers alluded to, near Yavisa, are not such as to warrant Mr. Helert's report, and we fear that he was either misled, or that he misrepresented the facts, as nothing is found yet beyond the ordinary washings, which are well known to the natives. All his reports have proved vague, loose, and totally unworthy of confidence, and, therefore, you must be prepared for the consequences, and we trust that, on his return here, he will furnish us with satisfactory explanation. However, it appears that the New Granada Government has appointed and dispatched from Bogota a gentleman who is well acquainted with the country, its mines, &c., to proceed to Panama to investigate the matter on its behalf, and we shall avail ourselves of his professional advice on his arrival here." The result of which was that, when the party landed at Portobello, Mr. Hopkins (the gentleman sent there by the Government) had been at Panama, examined all the reports and specimens from the Darien, and he acquainted the person in charge of the party that the company had been deceived, and that accounted for Mr. Helert having left them at some of the islands, and not making his appearance there. Instructions were given to the party to sail forthwith to Chagres, and remain there until further orders. Many of the gold washings of Panama were tried, and all mines and specimens from the Darien, to Veraguas, were examined by different parties, and fully corroborated the statement made by Mr. Hopkins, as to their being of no value to a company, and only suitable to native washers and migrating gold dealers. In a short time some of the men returned home in disgust, others died at Panama, and the remainder took possession of a sugar-cane estate on the coast, and thus ended our gold speculations in the isthmus. This circumstance being still fresh in the memory of those at Panama, and as Dr. Cullen must doubtless have heard of it, I should esteem it as a particular favour if he can give us some idea of what was ultimately done with the remainder of the capital and the machinery.—M. L.—E: Paris, June 5.

MINE INSPECTION.

SIR.—It is very easy for persons to point out and enlarge on the dangers of the poor collier, and to attribute the majority of accidents to the neglect of the proprietors; but what are the facts? We find, on careful investigation, that the most awful catastrophes from fire-damp, occur in some of the best-regulated collieries, in the north, as well as in Wales and other districts, so commonly condemned. If any good practical plan was suggested to prevent such explosions, it would be adopted, especially in those in which already everything which art can devise, or humanity suggest, is tried. The subdivision of the fresh air, and the separation of the foul air, is being carried on in the greatest perfection. Ventilating machines are employed for greater safety, and the strictest orders given to the men to avoid danger; yet, in spite of all, accidents occur—as witness the late calamity at Eaglesbush Colliery.

Is there a man of experience and judgment, who would take upon himself the heavy responsibility of preventing accidents in collieries by mere casual visits, or to come forward and give evidence of manslaughter against a manager of an unfortunate fiery colliery, who had done all that art could devise? I cannot conceive how a person of experience in mines, even locally, can suppose it possible that the occasional visits of an inspector could stop accidents, which the managers themselves are unable to do, owing often to causes over which they have no controul. Even Messrs. Dunn and Richardson, who so strongly urged for compulsory measures against the views of "Black Diamond" and myself last year, were unable to make good their arguments before the Lords' committee. They must have seen the difficulties. The evils were evident, but not the remedies, as the following extracts will show:—

Extracts from the Evidence before Lord Wharnclyffe.

J. RICHARDSON, Esq.—"What would be the powers which you think it would be right to confer upon such Government officers?"—"I should very much doubt the expediency of doing more than merely reporting upon the matter. I should rather doubt entering into much minutiae at first (as to compel them to have plans)."—"Of course that report would be evidence."—"Against the party."—"You say that the report of an inspector of a mine would stand as evidence against the owner hereafter?"—"I do."

This is as much as to say, that the *ipse dixit* of perhaps a Government student, under the title of inspector, is to go upon the authority of a mere oath or affidavit against the proprietors and old experienced managers of an extensive and well-regulated mine, in case of an unforeseen fatal accident. Again,—

"Has any Government inspector been sent to a colliery with which you have been concerned?"—"No; there has not been occasion."—"You have had no opportunity of judging of the justice of their reports?"—"No, I have not."

All the managers of the great collieries in the United Kingdom would, and have made, similar replies to the last queries.—See *Mr. Wood's Evidence*, &c.

These views have no objection whatever to the appointment of Government inspectors, provided they should be sensible practical men, because their being appointed would silence the agitators in the event of casualties, and thus relieve the managers from public censure. But should improper, inexperienced, and overmeddling individuals be appointed, the apparent remedy would be worse than the disease. Such are the opinions of men of extensive experience in such matters, and who have as much consideration and philanthropic feelings for their fellow-creatures, exposed to the dangers of explosions, or to the storms at sea, as any of those who have been so loud in their cry for legislative interference.

I know, from many years' experience, what mining is,—the difficulties of applying remedies to such accidents are greater than the ordinary observer can be at all aware of. I know also what Government inspectors are, from having had frequently to act with them. It is not many months since I was solicited to examine a case in dispute between the manager of a mine and a Government inspector on the continent, and which was decided in favour of the former; yet, notwithstanding that, the company had to incur a considerable expense to satisfy the caprice of the Government officials, merely to keep up useless bygone customs and mining laws, as unnecessary as unprofitable. Many of our mines which are now paying, and in which no accidents of any consequence occur, would be for ever closed were they subject to such mining restrictions as those in force on the continent. Being constantly engaged in the inspection of every description of mines in all countries, and practically acquainted with the subject, I have reason to state that there has been no plan yet proposed which will ensure a real redress to the grievances of the collier, better than that proposed by your talented correspondent Mr. Mushet. The arguments of "Black Diamond" and myself on the same subject were fully borne out in the evidence before Lord Wharnclyffe's committee—therefore, those who have the colliers' welfare at heart, and who are aware of the difficulties in preventing accidents, ought to step forward and promote all plans, independent of mere inspection, which present some practical chance of being of effectual service to the poor collier:—such, for instance, as the establishment of a fund for the sufferers, and to establish local practical mining schools, so as to give an opportunity to practical men to render themselves better qualified for their posts.—EVAN HOPKINS: Austinfriars, June 5.

PROFESSOR ANSTED'S LECTURES ON PRACTICAL GEOLOGY.

SIR.—I read, with much interest, your report (in the *Journal* of the 25th instant) of Prof. Ansted's lectures on practical geology, delivered at the Royal Institution, but must confess there or two or three matters on which I should be glad to be enlightened. The learned professor states, that blacklead is one of the forms in which carbon presents itself as carbon; but graphite, or blacklead, has, by many chemists, been considered as a carbureted of iron; more recently, Dr. Karsten, of Berlin, states that native graphite consists of a mechanical mixture of charcoal and iron, containing from 4 to 10 per cent. of the latter; I would, therefore, submit, whether graphite is one of the conditions in which carbon is exhibited in sufficient purity to entitle it to classification with diamond. In alluding to the

Newcastle coal beds, the professor says, there are 18 workable beds, averaging from 2 ft. to 7 ft. in thickness, and that "the total average thickness of workable coal was about four yards." Now, 18 beds, of only 2 ft. thickness, will give 36 feet, or 12 yards; and 18 beds, of the average between 2 ft. and 7 ft., or 4½ ft., will give a thickness of 81 ft. It is desirable some explanation of this anomaly may be given. In alluding to the coal-field of South Wales, the learned professor is stated to have said, that the coals were chiefly used in the district, "and for the steam navy, some of the seams yielding an anthracite coal, peculiarly serviceable for the latter." Surely, the professor is in error! The coals used by steamers are of a very different quality. The Llangennech, Graigola, and other coals designated as "steam-packet coals," are of the kind nearer approaching to a free-burning, and contain less bitumen than the strong coking coals. I believe anthracite has been very little used in the steam navy, principally on account of its liability to decrepitate; but this objection was completely obviated, by a form of furnace, for which a patent was obtained by Mr. John Player, about 12 years ago, but which (from some peculiar circumstances) was not kept sufficiently before the public to insure that more general adoption which its merits warrant. Prof. Ansted is also reported to say—"South Staffordshire was remarkable for containing the thickest beds of coal in this part of the world, they being often 10 ft. thick at one spot." Is it possible the learned professor can be ignorant of the celebrated ten-yard coal of that district, or is ten feet printed for ten yards, by error of the press?—Lusor: May 30.

[The substitution of 10 feet for 10 yards was an error of the press; and while making the correction, the reporter wishes us to state that, in his opinion, the reading of "Lusor" is of a somewhat antiquated description, as in most modern works on mineralogy, blacklead is described as a form of carbon. "Lusor" must be a somewhat hypercritical personage, inasmuch as the phrase "anthracite coal," used by Professor Ansted with reference to steamers, shows clearly that he did not mean a pure anthracite, but was indicating the very "steam-packet coals" mentioned by "Lusor" himself. And that, with regard to the thickness of the Newcastle coal beds, although there are 18 workable beds, the professor does not say that they are anywhere found together in one spot; but probably, was speaking of the general total average at any one spot as being 4 yards.]

MODERN FALLACIES.

SIR.—As there is a variety of opinion upon the stability of the new genus of Cost-book adventures professing to be "free of all calls and liabilities," a few observations from one who has seen the result of a similar system may prove instructive, and of interest to your readers. One wholesome example, Mr. Editor, is worth volumes of theory; I will, therefore, give you a brief history of a company, which will, I trust, open the eyes of the public to the deception that lurks beneath the glittering bait of "no calls! no liabilities!"

A few years ago, some ingenious individuals started a company to work a mine, which was to prove a certain fortune to all who embarked in it. The capital consisted of 20,000l., in shares of 20l. each, all paid up, and upon which it was stated no further call could possibly be required. The public, fascinated by the extraordinary prospects of the mine, eagerly purchased the shares, some of which were sold at a premium, and others at various prices. After a lapse of time matters did not present so flattering an aspect as was anticipated. The mine was in debt, and there were no funds to discharge the liabilities. The shareholders thought this strange, and very naturally asked what had become of the capital of 20,000l. Enquiries were instituted, and it was found that the mine never had a capital at all; shares had been issued, representing certain portions of the paid-up capital, but the worthy promoters of the scheme had never paid one sixpence upon them. They formed the adventure, allotted the shares to themselves, represented to the public that the full amount had been paid upon the shares sold them (i.e., both the shares and the public), and coolly pocketed the proceeds, leaving the future proprietors to make the best they could of an unfortunate adventure. To get the mine out of debt, call after call was made; many persons refused to pay them, and, consequently, forfeited their shares; and so far from there being no liability beyond the amount as stated to have been originally paid, the calls were necessarily 10 times more frequent than they otherwise would have been upon the fair and legitimate system. This is one lamentable instance out of many. I know of another company introduced to parties upon the same principle. The concoctors sold a moiety of the shares at high premiums, representing that the mine would be put to work with the original stated capital. When too late, the unfortunate shareholders found themselves the victims of deception; not a sixpence of capital raised by the issue of shares was ever spent upon the mine, which, to this day, though a valuable sett, is at a standstill for want of funds to develop it. The concoctors gained their object, served their views, and what is to them the feelings or the interest of the public?

And upon this principle, Mr. Editor, I dare be sworn 9-10ths of the companies upon the "no call! no liability!" system are established. Could we pry into the secret councils of the promoters, we should find this to be the nature of their schemes. The promoters form themselves into a committee of management; each has a certain portion of the shares allotted him, which he may dispose of as he thinks fit—not a farthing has he ever paid, not a farthing will he ever pay, upon the shares. The capital of the mine is an illusion. The concoctors resort to every method to raise the shares, and create a demand for them; fresh proprietors are let into the adventure, the concoctors retire with the proceeds of their cunning, and, when too late, the new adventurers will find themselves the proprietors of a valueless concern,—that the stated capital was nothing more than the premium taken by the promoters for the introduction of the adventure, and that there is a host of liabilities impending over them which they cannot possibly avoid.

I would warn the public of venturing into speculations of so equivocal a character. The system of "no calls! no liabilities!" is nothing more than the latest modern piece of deception to entrap the unwary. Any person at all acquainted with cost-book companies knows well the fallacy of the new system; its sole object is to seduce the public into worthless adventures, to benefit a party of scheming individuals. I condemn them all; I unhesitatingly declare that not one of the companies thus established but will assuredly end in ruin to the shareholders, and it behoves every man who has the welfare of the mining interest at heart, to use every exertion to suppress anything at all calculated to cast an odium upon legitimate mining, and to deter capitalists from investments therein. That these new systems will have that tendency is beyond all doubt: based upon deception and fallacy, concocted by ignorant and scheming men, their result will be inevitable ruin to those who are simple enough to repose confidence in their encouraging statements. One would imagine that the public has had too many bitter lessons to be again led away by such empty delusions, but that there still exists a deal of credulity, is evident from the numerous schemes daily springing up. To all who may peruse these, my observations, I say, in the words of an ancient monitor—"Be wise in time; suffer not yourselves to be deluded by the artful representations of men whose objects are obvious. Mining, honourably conducted, is not free of liability; what, then, must you not expect if you venture into schemes whose nature is imposition and fallacy? Where there is much tinsel and gaudy attraction, depend upon it there is deception; and, when too late, the foolish speculator will find what a false delusive hope he has nourished in the flattering system of "no calls! no liabilities!"

Cambridge, June 4.

MATTHEW MUNDIC.

WHITE GUNPOWDER.—We some weeks since noticed that a new powder had been exhibited at the Swansea Scientific Institution, which now appears to have been the invention of M. Augendre, and we are informed its real composition is two parts chlorate of potash, one part lump sugar, and one prussiate of potash; these ingredients being separately ground to a fine powder, are to be mixed together with a spatula, or, on the large scale, by means of a revolving barrel. The inventor insists upon its superiority over common gunpowder, as more powerful, less liable to be affected by damp air, and more easily and expeditiously prepared. This last property is put forward as rendering it highly important for ships use, as, in consequence, no large and dangerous magazines need be kept, the several ingredients can be securely stowed away ready prepared, and mixed as occasion may require. Notwithstanding these properties, the gases evolved rapidly corrode iron fire-arms, and another great objection is its combustibility—firing at a temperature a little above boiling water, while the slightest friction, even trituration in a smooth mortar, will cause it to explode. When very new and good, it may be exploded by a sharp blow, but it is not sufficiently detonating to become a fit material for percussion caps. The smallest portion of sulphur, charcoal, or common powder, when grinding, renders it still more explosive, and the inventor, therefore, cautions against suffering it to become contaminated with such ingredients. It would thus appear that although the original and weaker gunpowder has had to withstand powerful adversaries in gun-cotton and this white powder, neither of them is likely to supersede its use.

THE CREBOR COPPER MINE.

The words "kindly" and "promising" have been so much used and abused in mine reporting, and the descriptions given of the causes which ought to produce the anticipated results, are in many cases so vague and unsatisfactory, that we have much pleasure in copying into our columns a report on the Crebor Mine, which has been recently issued to the adventurers in that concern, because it gives, in a simple and plain manner, matter of much interest to the general reader, and reasons for the expectation of future success, sufficient, we should think, to make the adventurers well pleased with their enterprise. We particularly notice that much pains have been taken to show the strike or bearing, and dip of the beds of killas, and the limits within which they are considered to be unfavourable or favourable to the deposit of copper ore in the lodes; and we shall be glad to see this example followed by mine reporters generally, wherever practicable, because it is now pretty well admitted that the bearing and dip of the "country" influences the direction and manner of deposit of the shoots of ore in the lodes, and that without good breeding ground, the conjunction of lodes with cross-courses, fookans, &c., will not produce deposits of ore in the lodes. In fact, too much attention cannot be bestowed, by all persons engaged in the working of mines, to all the phenomena connected with the strata traversed by the lodes they are exploring; yet, in how many cases are mine agents almost totally unacquainted with even the most ordinary particulars of these matters? We recommend our mining friends to throw overboard at once the old saying of "where 'tis, there 'tis," which, although true enough in itself, has led many persons to treat with ridicule all attempts at systematising what they broadly state to be without rule or order; and they should reflect that, as every atom of matter in the universe is governed by absolute laws, so the deposits of ore in lodes are not the results of mere hazard, but are attributable to definite causes, of which it is true we at present know little, but which we may hope to see systematised and brought within our knowledge, if the practical working man will assist the philosopher in his researches, and not affect to cover his own ignorance by sneering at labours which he does not understand, and which are rendered more difficult by the want of hearty co-operation on the part of those whose opportunities of observing minute details are so great, but whose habits of thought have not led them to the deductions of general results from the mass of valuable unassorted information with which their minds are stored.

We know there many mine agents superior to the prejudices we refer to, and whose great ambition is to see the art of mining raised to a higher position than it now occupies—men capable of comprehending the abstract principles of science, and whose practical knowledge enables them to avail themselves of them, with such allowances as the ever-varying circumstances with which they have to deal may require. It is certainly impossible to reduce mining operations, in unexplored ground, to a certainty; but we may be enabled to say the probability of failure is great, or little, according to the degree of accuracy with which the phenomena in connection with it have been observed, and due reasons assigned for its "kindly" or "promising" symptoms.

The value of closely observing the strata forming the walls of lodes is evidenced by the sketches accompanying the Crebor report, and we see at once the truth of the statement, that the deposits of ore in Crebor Mine "have been caused by the happy combination, at the same points, of a lode, a cross-course, or other intersector, and a stratum of killas favourable to the deposit of copper ore in the lodes." Had the cross-courses near Kelly, Smith, and Cook's shafts, intersected the lodes—say, 100 fms. further west, in the unfavourable stratum of killas, "shaded darkly," in all probability the old adventurers would have lost their money, instead of finding the famous deposit of ore, which is said to have been "the most productive of any known in the Tavistock district, until the advent of the Devon Great Consols Mines." Between the good killas just referred to, and the next stratum of bearing ground, there appears to intervene about 260 fms., measured horizontally, of the unfavourable ground; and here we see encouragement given to adventurers in other mines to push on, in spite of improving present appearances, for the Crebor adventurers were rewarded for their perseverance, by reaching a second run of good ground, and finding therein some great deposits of ore, "said to have realised \$50,000," at the same time, some of our friends may take a hint, who are too apt to report vaguely, that such and such a mine is in the same "country" as some neighbouring productive mine; whereas, in fact, their promised El Dorado may be, unluckily, in a stratum "shaded darkly," and possessing only the worst features of their flourishing neighbours. We think the recommendation to try the side lodes at Crebor, opposite to where the great deposits of ore were found in the main lode, is a wise one, for the successful re-opening of most of the old and great mines in Cornwall, has in a great degree been owing to the discoveries made in the side lodes and branches, left unworked or untried by the previous adventurers; and, as "like causes produce like effects," and the parallel lodes at Crebor traverse "the same favourable strata of killas, and are intersected by the same cross-courses as the main lode," the reasoning appears to be just, that the parallel lodes and branches will be enriched in a manner similar to the main lode. Our observations must be taken to apply in a general sense to all mines similarly situated with Wheel Crebor, for we disclaim all intention of giving any opinion upon, or advocating that adventure, which appears to be quite able to run alone, without any extraneous assistance. To those persons who are desirous of seriously studying the matter we have just commented upon, Mr. Evan Hopkins's work, on *Terrestrial Magnetism*, will afford much valuable and systematic information.

ACCIDENTS.

Awful Explosion at Usworth Colliery.—We regret we have to announce another of those fatal occurrences by which our fellow-creatures are hurried into eternity. It took place on Wednesday last, at nine o'clock in the morning, at Usworth Colliery, 10 miles from Sunderland, the property of Messrs. Jonassohn and Elliott, and is ventilated by a downcast shaft, 104 ft. in diameter, and an upcast 7 ft. It is 180 fms. deep. There has always been kept up a constant circulation of 60,000 cubic feet of air per minute through the workings, and was considered by practical men a perfectly safe mine. Not the least danger being feared, the men were working with naked candles, when a large blower suddenly burst out of the shaft, ignited, and threw down a large mass of coal. Four men were severely burned, and numbers rendered perfectly insensible by the carbonic acid gas. The result, when the mine was cleared, was 11 men and 2 boys past recovery, and five who were brought out insensible, but, by prompt attention, are in a fair way of recovery. This is one of those instances in colliery operations in which no forethought, no precautions can prevent a catastrophe. The mine was one of the best ventilated in the northern districts; no explosion had ever occurred before, nor was there the slightest symptoms of any thing wrong, when a sudden blower from the Bensham seam (a very early one) occasioned the fatal result; and, strange to say, a few hours after the mine was clear as ever, and on passing the spot it would be impossible to suppose such an accident had occurred, as scarcely any damage was done to the workings.

Monkwearmouth Colliery.—As W. Barnes was hewing coals in Monkwearmouth Colliery the roof suddenly fell, and completely buried him beneath a huge mass of stones; he was shortly discovered quite dead, and a stone of about a ton weight was lying upon him, which took 10 men to remove.

Tondu Colliery, Glamorgan.—Two colliers were slightly injured by an explosion of foul air.

Dudley.—Robert Groom and John Shaw were accidentally killed while at work down a pit connected with the New British Iron Company's colliery, in the Northfield-road, by a fall of mine.

Wolverhampton.—William Piercy, while engaged as a bankman at the Brewery Colliery, accidentally fell down the shaft of one of the pits, and was killed on the spot.

Merthyr.—D. Davis was killed by a fall of coal at one of the Cwmbarogd pits.

Bolton.—As Hampson Bridge (timekeeper at Mr. Peter Warburton's stone quarry, Halliwell) was standing upon the rock, removing some "feigh," or top stratum (he had been cautioned not to remain in that position), a fall took place from the top, when he was so alarmed that he fell down into the quarry, a depth of 124 yards. He was dreadfully injured, and subsequently died from the effects of the injuries.

Wheel Trolleying.—T. Treloar slipped his foot from a ladder, and fell to a depth of about 70 feet; he was dreadfully mutilated, and not likely to live.

Rosley Regis.—B. Knight, aged 10 years, was killed by a fall of coal, while working in Messrs. Badger's Old Hall Colliery.

Tincroft Mine.—H. James was killed by the falling of a scale of ground.

Cook's Kitchen.—C. Chappel was killed while assisting in repairing the shaft.

Tresavean Mine.—W. Dunstan fell from one of the ladders, in returning up from his work, and was killed.

Tipton.—J. Lemm was killed by a fall of coal at Messrs. Caddick and Co.'s pit, Tividale.

Falsall.—Peter Clarke, a lad 11 years of age, fell down the shaft of a colliery belonging to Mr. Haines, and was killed.

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Bate's West Hartley 12 6—Buddle's West Hartley 12 6—Carr's Hartley 13 East Adair's Main 11—North Percy Hartley 12 6—Old Tanfield 12 6—Ond's Redheugh 13 6—Ravenworth West Hartley 13—Tanfield Moor 13—Tanfield Moor Bates 13 6—West Wylam 12—Wylam 12 6—Walls' End Acon Close 14—Bell and Brown 13 9—Elm Park 13 9—Gibson 13—Hilda 13 3—Morrison 13 9—Original Gibson 13 6—Riddell 13 3—Hetton 13 3—Haswell 16 6—Kepier Grange 15 3—Lambton 15 9—Russell's Hetton 15 9—Stewart's 16 3—Hough Hall 14 3—South Kellie 14 3—Whitworth 12 6—Adelaide Tees 16 6—Maclean's Tees 12 3—Seymour Tees 13 9—Hartley 12 6—Howard's West Hartley 12 6—Nixon's Merthyr and Cardiff 20—Sidney's Hartley 13 6—Whitworth Coke 20—Ships at market, 16 1/2; sold, 14.

WEDNESDAY.—Bate's West Hartley 13—Buddle's West Hartley 13—Carr's Hartley 13—Davison's West Hartley 13 6—East Adair's Main 11—Hollywell 14—North Percy Hartley 13—Ravenworth West Hartley 13—Tanfield Moor 13—Tanfield Moor Bates 13 6—West Wylam 12—Wylam 12 6—Walls' End Acon Close 14—Bell and Brown 13 9—Elm Park 13 9—Gibson 13—Hilda 13 3—Morrison 13 9—Original Gibson 13 6—Riddell 13 3—Hetton 13 3—Haswell 16 6—Kepier Grange 15 3—Lambton 15 9—Russell's Hetton 15 9—Stewart's 16 3—Hough Hall 14 3—South Kellie 14 3—Whitworth 12 6—Adelaide Tees 16 6—Maclean's Tees 12 3—Seymour Tees 13 9—Hartley 12 6—Howard's West Hartley 12 6—Nixon's Merthyr and Cardiff 20—Sidney's Hartley 13 6—Whitworth Coke 20—Ships at market, 80; sold, 47.

FRIDAY.—Buddle's West Hartley 13—Carr's West Hartley 13—East Adair's Main 11—Hollywell 14—North Percy Hartley 13—Ond's Redheugh 13 6—Ravenworth West Hartley 13—Tanfield Moor 13—Tanfield Moor Bates 13 6—West Wylam 12—Wylam 12 6—Walls' End Acon Close 14—Bell and Brown 13 9—Elm Park 13 9—Gibson 13—Hilda 13 3—Morrison 13 9—Original Gibson 13 6—Riddell 13 3—Hetton 13 3—Haswell 16 6—Kepier Grange 15 3—Lambton 15 9—Russell's Hetton 15 9—Stewart's 16 3—Hough Hall 14 3—South Kellie 14 3—Whitworth 12 6—Adelaide Tees 16 6—Maclean's Tees 12 3—Seymour Tees 13 9—Hartley 12 6—Howard's West Hartley 12 6—Nixon's Merthyr and Cardiff 20—Ships at market, 37; sold, 24.

IRON, HARDWARE, AND METAL TRADES' PENSION SOCIETY.

The NINTH ELECTION OF PENSIONERS will take place in NOVEMBER next. The candidates must be deserving and necessitous persons, occupying, or having occupied, the station of Master, Traveller, Clerk, Warehouseman, Foreman, or Apprentice, in any branch of the Iron, Hardware, and Metal Trades, in any part of Great Britain, or the Welsh Principality.

Printed forms of application, on the recommendation of two subscribers, may be had of the undersigned, to whom they are to be returned, filled up with the required particulars, on or before the 31st August next, after which day no application relating to this election can be received.

Further information may be obtained on application to G. S. NOTTAGE, Sec. On the 27th of May three additional pensioners were elected to pensions of 20 guineas per annum each—viz., Charles Emery, Henry Lee, and Sarah Brown.

By order of the Court. G. DE B. ATTWOOD, Secretary.

7, St. Helen's-place, London, June 5, 1850.

BANK OF BRITISH NORTH AMERICA, Incorporated by Royal Charter.

The Court of Directors hereby give Notice, that a HALF-YEARLY DIVIDEND, at the rate of 5 per cent. per annum on the capital of the bank, will be PAYABLE to the proprietors of shares, registered in this country, on and after the 5th day of July next, at the office of the Corporation, 7, St. Helen's-place, Bishopsgate-street, between the hours of Ten and Four. No transfer can be made between the 15th inst. and the 5th proximo, as the books must be closed during that period.

By order of the Court. G. DE B. ATTWOOD, Secretary.

7, St. Helen's-place, London, June 5, 1850.

STEAM TO INDIA AND CHINA, via EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS.

TO CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.

BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and Oriental-plate, Southampton.

INDURATED AND IMPERVIOUS STONE, CHALK, &c.

AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHINSON'S MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large.

Apply to HUTCHINSON & CO., 140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c. LICENCES GRANTED.

PATENT IMPROVEMENTS IN CHRONOMETERS.

WATCHES AND CLOCKS.

E. J. DENT, Esq., Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, and 1842. Silver lever watches, jewelled in four holes, 6 g. each; in gold cases, from £40 to £10 extra. Gold horizontal watches, with gold dials, from 8 g. to 15 g. each.

DENTS PATENT DIPLIDSCOPE. or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use, 1s. each, but to customers gratis.

WINDING-UP OF JOINT-STOCK COMPANIES.

The affairs of the following undertakings are to be wound up:—Imperial Salt and Alkali Company, the Dolphin Club, the Colchester Junction Railway, and the Tirhoot Company. Mr. Barlow has been appointed official manager to wind up the affairs of the Kingsland Literary Institution, and Mr. Hutton to settle those of the Peterborough and Wisbeach Railway.

MADRID AND VALENCIA.—Yesterday Master Blunt granted his certificate against Mr. Rose, who still refuses to surrender the books and papers, and an order for the committal of Mr. Chadwick.

THE IRON DOME OF THE INTERNATIONAL EXHIBITION HALL.

The construction of this dome, 200 ft. in diameter, though of light sheet-iron, will be no joke. We may remind the reader that it will be double the size of our St. Paul's dome, which is about 112 feet in diameter; the dome of St. Peter's, at Rome, is 139 feet in diameter; and that of the Pantheon, 142 feet. This central hall will be a polygon of sixteen sides, four of which will open into gardens around it. Its main walls will be of brick, and about 60 ft. high.—*Builder.*

New Patents.

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

G. E. DONISTHORPE, Leeds, York, manufacturer: For improvements in wheels of locomotive carriages. The running surface of the driving wheel is composed of a number of independent blocks, which rest upon a ring of vulcanised India-rubber, or other suitable elastic material. The blocks are supported by means of bolts attached to the inside of the flange, which take into slots in the sides of the blocks provided for that purpose, so as to allow them a certain amount of play.

CHAS. J. HARRISON, Manchester, engineer: For improvements in the construction of each composed of several separate and independent parts, whereby a greater amount of bearing surface is obtained.

J. U. STANWELL, Margaret-street, Cavendish-square: For improvements in the manufacture of axle-tree boxes for carriages, and of the bearings of the axles of railways, and in making of an alloy of metal suitable for such and like purposes. This invention consists—1. In pouring a melted soft metal through holes in the box, which, when cold, encircles the axle, and adheres firmly to the box. To provide for the admission of some lubricating substance to between the axle and the soft metal, a piece of cloth is previously twisted round a portion of the circumference of the axle, and under one of the holes in the box.—2. In certain apparatus for moulding the bearings of railway axles.—3. In the manufacture of the soft metal, which is composed of 75 parts, by weight, of zinc, 18 parts of tin, 4 of lead, and 2 of antimony. The zinc, tin, and lead are melted together, and the antimony, which has been previously melted at a higher temperature, is then poured in.—The claim embraces the improvements as described in the specification, and exemplified by the drawings which accompany it.

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